

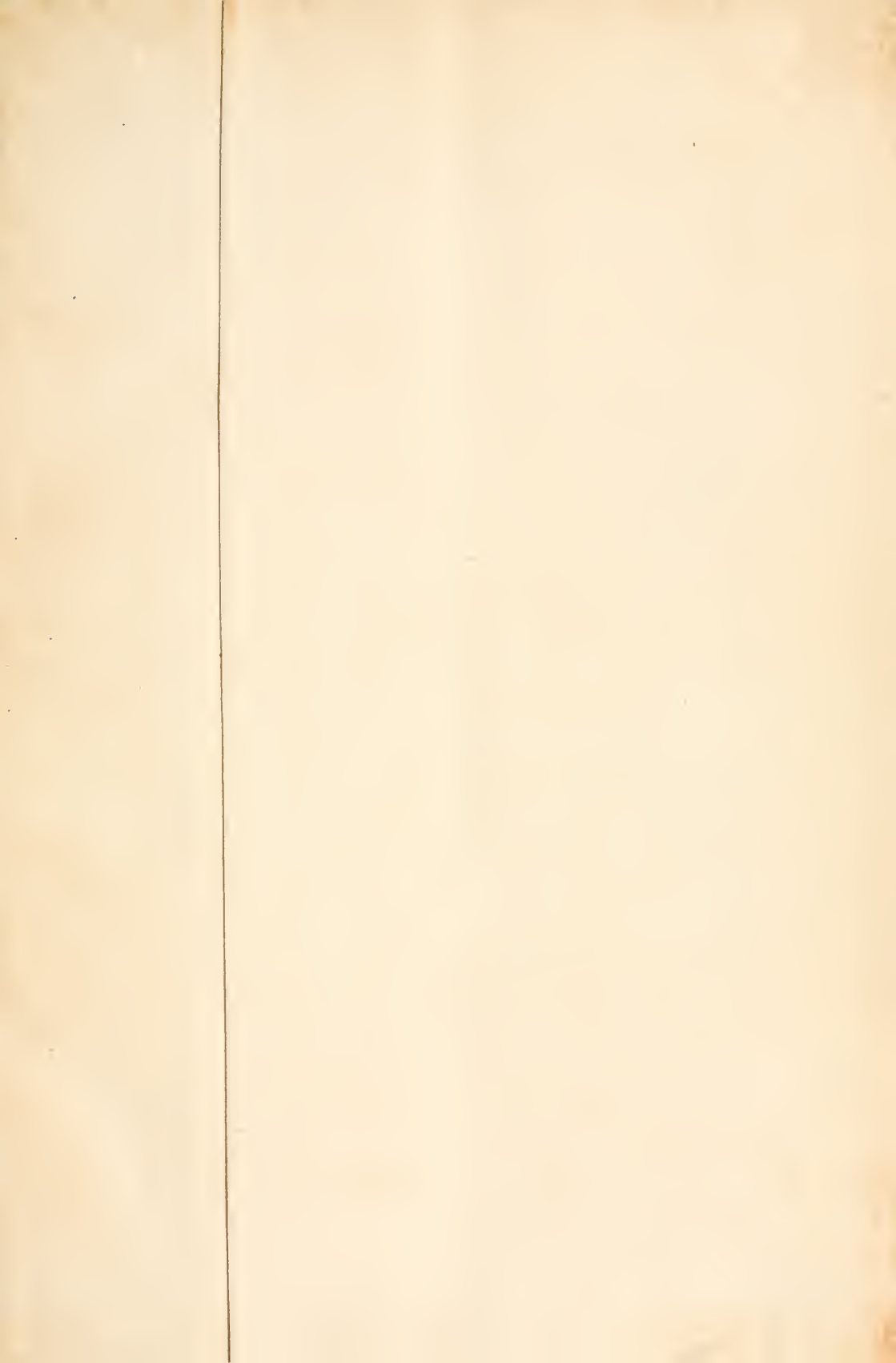


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ANNALS

—OF—

GYNÆCOLOGY AND PÆDIATRY,

A MONTHLY REVIEW OF

Gynæcology, Obstetrics, Abdominal Surgery,
and the Diseases of Children.

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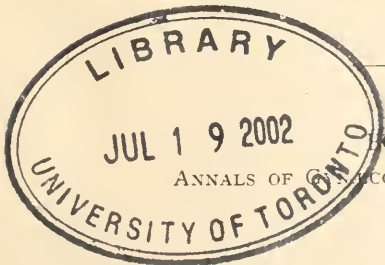
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ANNALS

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GYNÆCOLOGY AND PÆDIATRY.

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No 1

Anterior Colpotomy.

A. MARTIN.

BERLIN.

THE more the results of modern gynæcology entitle us to understand a surgical treatment of many organic diseases of women which do not prove amenable to medical treatment, the more we must feel bound to adopt conservative measures wherever we feel able to preserve female organs without endangering the patients prospects.

The same conservatism must rule with reference to those cicatrices which are disposed to morbid transformation, and to endanger further on the general comfort of our patients.

Undoubtedly the latter remark points particularly to abdominal section. In full appreciation of the great benefit and the high importance of this operation, we must recognize that the cicatrices of abdominal section prove to be very distressing to many women. Even when healing has been absolutely undisturbed, and when the result is a most satisfactory

one in regard to the disease which required the operation, we see resulting serious discomfort from these abdominal cicatrices under different circumstances, as pregnancy, general want of strength, neurasthenia, physiological changes of the tissues at the climacteric period which may prove fatal to the abdominal cicatrix, not to mention those cases in which the defective tone of the tissues and unwise behavior of the patient during convalescence, or last, not least, wound infection resulting in an abdominal abscess.

Considering this, we must derive great satisfaction from seeing that within the last years operative gynæcology has applied renewed and remarkably successful attention to vaginal operations. Amongst these there is found one which has as yet only a limited application, and which ought to be given the first place in vaginal technique—*anterior colpotomy*.

The anatomical conformation of the pelvis offers an entrance into the abdominal cavity through the anterior fornx which is easy, and at the same safe. There we do not meet any important pelvic organs, there we penetrate that territory in which the anastomoses of the lateral vessels are not accompanied by any large arteries or veins.

Experience proves that the bladder can be separated without difficulty from the collum uteri, that the fold of the peritoneum can be freely exposed to our view, and that the bladder can be pushed up out of the way, after which the peritoneum can be opened and with all surgical security.

The ureters are beyond reach as they lie at the side of the collum and are pushed up with the bladder.

The entire anterior surface of the uterus is exposed, after which the fundus can be easily pulled out into the vagina beyond the vulva, bringing with it the tubes and ovaries and so exposing the whole of the Douglas's pouch for inspection and surgical treatment.

My confrère, Dr. Dührssen of Berlin was the first to carry out successfully this operation. It was his publication which led me to adopt it, as soon as I became free from the fear of injuring the bladder. I applied *anterior colpotomy* in a large number of diseases of the pelvic organs.

Cases can be treated in this way which otherwise could not be without an abdominal section.

If you will permit me I shall give

you a short description of the operation.

The patient is placed in the dorsal position with the legs raised on either side. A speculum being introduced into the vagina the uterus is fixed with a pair of forceps invented by my assistant, Dr. Orthmann, a combination of a uterine probe and vulsella, which grasps the anterior lip of the cervix so that one can draw down the cervical portion of the uterus to the vaginal introitus. You should fasten another pair of vulsella forceps just under the orifice of the urethra, about three (3) inches from the cervical opening. The anterior vaginal wall is pulled upwards, a fold is raised vertically, which is to be incised and peeled off laterally from the surface of the bladder and cervical body. Hard fibres will be seen above the vaginal insertion, which are to be divided. The upper border is then pushed upwards with the finger, separating the loose tissue between the bladder and uterus, so carrying the former up out of the way behind the pubes symphysis. Occasionally the bladder is distinctly made out, otherwise never seen.

The peritoneum is found in the form of a fold between the bladder and uterus, known by its pellucid appearance, this is to be opened when the abdominal cavity and contents are exposed to view.

A remarkable point about the operation is the small loss of blood. My 109 cases have never required ligatures or pressure forceps until the abdominal cavity was opened.

Further operative procedures are to be carried out according to the requirements of the case, as I will indicate further on; these being completed the wound is closed in the following manner with juniper catgut.

The uterus and adnexa are to be replaced in the abdominal cavity by pressing on the anterior uterine surface. A strong catgut suture is to be carried with a curved needle through the upper end of the vaginal wound, the cellular tissue at the base of the bladder, the peritoneum and the anterior uterine wall, near the fundus, taking a good hold of it, and out again on opposite side in the same manner, and tied.

Two other sutures close the vaginal wound, connecting it with the anterior surface of the corpus uteri, a fourth the collum: a running catgut suture is used to close the vaginal wound more exactly between these deep sutures.

I will now draw your attention to the different operations which may be performed either in the interior of the uterus or in the abdominal cavity through this opening.

I. Take first the cases of *myomatous tumors*. These can be removed wherever they are situated. Subserous ones simply by excision after ligating the pedicle: intramural ones through an incision in the anterior uterine wall, which has been exposed, even if we have to enter the cavity itself.

By morcellement we can in time remove very large tumors, but should

avoid those which extend too near the umbilicus. The special advantage of this method is to fix the anterior surface of the uterus to the vaginal wall and so control the bleeding, if any. Should all the uterine tissue capable of function be removed total extirpation can be carried out at once.

II. *Movable retroflected uteri* can be easily replaced and retained by vaginal fixation.

III. *Peritoneal adhesions* fixing the uterus are broken up with the finger, even when covering the entire surface of that organ. Any bleeding that occurs can be checked by a few sutures.

IV. *Cases of procidentia*. In these we excise a part of the vaginal wall to make it of the proper length, fix the uterus to the upper part of the vaginal wall, which is very little disturbed, and so take the weight of the uterus from the remaining portion, retaining it in its normal position.

V. When the uterus is drawn downwards and forwards *both ovaries* and *tubes* follow on the posterior surface, as soon as they are freed from adhesions.

The adhesions are easily broken up unless when fixed to the posterior surface of Douglas's pouch. Such cases I exclude from that operation believing they belong to the dominion of abdominal surgery.

VI. *Cystic ovarian tumors* can be opened and brought outside so as to expose the pedicle for proper ligation. In different instances I have emptied follicular cysts, no bleeding following.

and returned the ovaries. In some I excised the diseased part and retained the healthy, performing what we call "ovarian resections."

VII. Anterior colpotomy offers great advantages in treating *diseases of the tubes*.

In cases of salpingitis chronica we can generally free and remove them when degenerated. In the same manner I have removed pyosalpinx and hæmatosalpinx.

Dühressen has removed already two cases of *tubal pregnancy*. *Kossmann* another, while I have had also one.

We know that many a case of *tubal atresia* does not require removal, as hydrosalpinx can be opened, and the opening made permanent by uniting the mucous and peritoneal edges. I have done this in cases after colpotomy.

All these different operations having been performed according to the case, the uterus is replaced and fixed as described above. The wound takes from eight to ten days to heal, so that about the twelfth day the patient may be allowed to leave bed. *No local treatment is required*. *Feverish reaction* is unknown in my cases. All the 109 recovered. In the majority *urine* was passed spontaneously from the first, the minority including no more than is frequently seen from the recumbent position in other cases. In four cases I had to perform total extirpation, as there was not left a sufficient quantity of functional uterine tissue.

I have done this vaginal operation in 17 cases of uterine *myomata*, but

wish to repeat that I prefer abdominal section in all cases where the tumor is larger than two fists. In 49 cases I freed the uterus from *adhesions*, which was generally done with three pairs of forceps as soon as the abdominal cavity was opened and Orthmann's instrument removed. I fixed one after another into the anterior wall of the body, pulling down gradually the fundus, according to the progress of the freeing of the adhesions by my finger. Chronic peritonitis has never compelled me to stop the operation.

Another question, is what to do with those adhesions in the posterior uterine surface attached to the anterior surface of the sacrum. Up to the present time I do not perform colpotomy on cases where I recognize such a condition.

I have treated 169 ovarian and 139 tubal cases in this manner, and one of tubal pregnancy. I have successfully fixed 19 cases of retroflexed and 7 of prolapsed uteri. Only one of these cases had any difficulty during convalescence, owing to my tearing the bladder with my forceps: this was closed at once with sutures. When coughing very hard on the sixth day this wound opened, but has since healed spontaneously, the patient being free from any bladder discomfort on the nineteenth day.

A large percentage of the patients have been operated on within the past three months, so that I am not able to give definite results so early. So far I have not heard of a single case that has not been freed from the

previous disorder, especially in those cases that were in the last quarter of the past and the first of the present year.

I have not heard of a case of pregnancy following colpotomy so far amongst my patients. I have had five cases of pregnancy, all ending satisfactory, done by method we formerly employed, of vaginal fixation.

This experience agrees with that of others, amongst whom I may mention *Mackenrodt* and *Dührssen*.

No doubt we have more to learn, since our experience is too short, as the following will show. A poor woman, who had been operated by colpotomy by *Dührssen*, became pregnant. Having been infected with gonorrhœa during pregnancy, she was admitted into *Gusserow's* klinik. After labor set in, at full time, the os did not dilate and fever set in. She was delivered by Caesarian section of a dead child, and in the end she died from secondary hæmorrhage. Post

mortem examination showed that the corpus uteri remained fixed, and that the line of union had not yielded, neither during labor nor pregnancy.

There is no doubt that the free incision of the os uteri into the cicatrix of the fixation would have permitted the patient to be safely delivered at the proper time. This experience I consider of the highest value, because it shows us how to proceed in such severe and extremely rare cases.

Gentlemen, whenever we propose a new operation it is with doubts and scruples that we first make it public, so that by my experience up to the present time I wish merely to prove the soundness of its anatomical basis and practicability. In the past there has been danger of uncontrollable loss of blood, or trouble following in some, from the abdominal cicatrix, all of which is avoided by the operation of *anterior colpotomy*.

Three Cases of Pelvic Inflammation, attended with Abscess of the Ovary, with Clinical Remarks.*

(AN ABSTRACT.)

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THE author points out that the form of pelvic inflammation with which small suppurating cysts of the ovary and ovarian abscesses are usually associated is not pelvic cellulitis, but salpingitis, the ovarian suppura-

tion being due to secondary infection. He briefly describes the course of events when salpingitis is attended with profuse suppuration, showing how the pus may either be confined in the Fallopian tube (by occlusion of the abdominal ostium), or (if the

*Read before the Obstetrical Society of London.

abdominal opening remain patulous) be discharged through that opening and form an intra-peritoneal abscess. He points out that although the usual seat of such an intra-peritoneal abscess is the pouch of Douglas, it may, in cases where the tube has been lifted out of the pelvis by the development of the pregnant uterus, form in a different situation.—for example, at the upper and lateral part of the pelvis, near the brim. He shows that wherever the intra-peritoneal abscess is formed it is usual to find the ovary constituting part of its wall. In this way the ovary is specially liable to secondary infection, the more so, probably, if it is already the seat of incipient cystic disease.

Three cases are related of abscess in the ovary due to secondary infection of this kind. In the first case two separate abscesses were found in the ovary, one at its outer end close to the intra-peritoneal abscess, and one at its inner end some distance away. In the second case there were also two abscesses, but the mischief was more advanced, a communication having been opened up between the two abscesses by a process of ulceration. In the third case a still more advanced stage was seen, the ovary having ruptured and the contents of the abscess having escaped. The first two were puerperal cases, and in them the intra-peritoneal abscess, formed by the discharge of the contents of a suppurating Fallopian tube, was situated high up in the pelvis, close to the edge of the psoas muscle

where it overlhangs the pelvic brim. In each case the suppurating ovary formed part of the wall of the abscess. These two cases recovered, the third died.

The narration of the cases is followed by a few remarks on some of the modes of termination of ovarian abscess, and on the illusory character of a temporary subsidence of symptoms, with apparent restoration to health, in some of these cases of severe pelvic inflammation.

The paper concludes with a reference to eighty-three cases in which the author had performed abdominal section for non-cellulitic pelvic suppuration. An analysis of these cases shows that ovarian suppuration occurred in a large percentage, and that, next to purulent salpingitis, it is the most frequent form of non-cellulitic suppuration occurring within the female pelvis.

The following cases, all three of which happened to be under observation at the same time, and were operated upon within a few days of one another, illustrate in an unusually interesting manner some of the more remote, but at the same time the most serious dangers incurred in severe pelvic inflammation. The form of pelvic inflammation in which these risks are encountered is not that which primarily affects the pelvic connective tissue, but the more common form in which, starting from the endometrium, the inflammation spreads to the lining membrane of the Fallopian tubes, and through them reaches the pelvic peritoneum. If the inflam-

mation is of a severe type, and is attended with profuse suppuration, one of several things may happen. The abdominal ostium of the Fallopian tube may become quickly sealed up by the inflammatory process, and the pus may thus be confined within the closed tube, forming a pyosalpinx. If, on the other hand, the abdominal end of the tube remains open, the pus is discharged into the peritoneal cavity. In some cases the result is general suppurative peritonitis, but much more usually the pus finds itself limited by already formed peritonitic adhesions, and the result is an intra-peritoneal pelvic abscess. The locality of such an abscess depends on the position that the open end of the Fallopian tube happened to occupy at the time the discharge took place. When the outer end of the tube is lying in its usual position behind the broad ligament, with its mouth directed downwards, the abscess forms in the pouch of Douglas. But where the occurrence takes place at a time when the direction of the tube is other than the usual one—when, for example, the tube has been lifted above the plane of the pelvic brim during the development of the pregnant uterus, and is seized whilst in that elevated position by an attack of suppurative inflammation,—the abscess formed by the discharge of pus through its fimbriated end may be, and often is, situated not in Douglas's pouch, but near the lateral and posterior part of the pelvic brim, close to the edge of the psoas muscle. This is what happened in the first two of the cases

here recorded, in both of which the original mischief followed parturition, and was septic in its character. In the third case, where the source of infection was probably an attack of gonorrhœa, the state of the parts at the time of the operation made it impossible to say whether such an abscess as now described had existed. If it had, it is certain that it was in Douglas's pouch, and not at the pelvic brim.

When the Fallopian tube has thus got rid of its purulent contents, the inflammation of its lining membrane gradually subsides, and when it comes to be examined at a later stage the inner surface of the thickened and elongated tube may show nothing more than a general softening and œdema. In the meantime the intra-peritoneal abscess, closed in amongst adhesions, may remain for some time latent,—that is, it may produce few or no symptoms of presence. Sooner or later, however, its walls undergo ulceration, and its contents make their escape either into the bowel, or the vagina, or the peritoneal cavity, or the bladder, with results varying accordingly.

Meanwhile the infection may spread to contiguous parts, and especially to the ovary, which is almost invariably involved amongst the tissues and organs matted together by the peritonitis surrounding the purulent collection, whether that be in the tube or outside it. The three cases here recorded are examples of this secondary infection of the ovary. In all of them the ovary had become

the seat of suppuration. In Case 1, two separate abscesses were found in the ovary, one at the outer end, close to the intra-peritoneal abscess, and one at the inner end, some distance away. In Case 2, there were also two abscesses, but in this instance the mischief had advanced further, and a communication had been opened up between the two ovarian abscesses by a process of ulceration. In Case 3, a still more advanced stage was seen, for here the ovary had ruptured, and the contents of the abscess had escaped.

CASE I.—A lady aged 35, the wife of an engineer residing in India, was admitted into St. Thomas' Home under my care, January 24, 1894. She had been married eighteen months. Before marriage she had suffered for some time from pain in the right groin, thought to be due to a strain from lifting a chest of drawers. She had never had malarial or jungle fever. She was attended in her first and only confinement, which took place in India on August 12, 1893, by a nurse-midwife, who took no special precautions as to cleanliness, and is not remembered to have been seen even to wash her hands. The doctor took no part in the delivery, and neither then nor subsequently made a single vaginal examination. The labor was normal. Two or three days afterwards a rigor occurred, accompanied with a rise of temperature but with no pain. A second rigor occurred about two weeks later, and the patient was in bed a month with symptoms of fever.

During the latter part of this time there were some pain and slight swelling in the left groin. The temperature did not become normal until the seventy-ninth day (beginning of twelfth week). It remained normal until the ninety-fifth day (middle of fourteenth week), when it again rose. She now had pleurisy ending in empyema, which was tapped and drained. On the 111th and 112th days (end of sixteenth week) she had a temperature of 105° , preceded by shivering and accompanied with vomiting, and what was called bilious fever. After this she remained in India another three weeks, and on December 27, 1893, she embarked for England. Whilst on board ship she had pain and swelling in the right iliac region with pyrexia, and for three days before reaching Naples the pain had been so severe that she landed at Naples with a view to taking medical advice as to the propriety of continuing her journey. Dr. Gairdner advised her to do so. She followed his advice, and on reaching England was admitted into St. Thomas's Home.

The note made on her admission describes her as a light-complexioned woman, pale and emaciated, but of bright and cheerful disposition. She complained of little pain. Her temperature was normal in the morning, and about 100° in the evening. There was a solid swelling the size of a closed fist, smooth, hard and fixed, extending upwards for a height of 2 1-2 inches above Poupart's ligament on the right side. Its upper

border was parallel with Poupart's ligament. It was continuous with a mass in the pelvis to the right and in front of the uterus, which was enlarged and retroflexed. Nothing abnormal was detected on the left side or in Douglas's pouch.

It was decided to watch the case with a view to determining how far the swelling was due to cellulitis, and to see whether an abscess was about to point externally.

After being under observation for a month the induration in the abdominal wall itself had disappeared. The hard irregular mass in the pelvis could now be felt more distinctly; it was firmly fixed to the abdominal parietes in front, to the lateral wall of the pelvis on the right, and to the uterus behind and to the left. The patient, though very cheerful, was distinctly losing flesh, and it was evident her general condition was not improving. The diagnosis was suppurative inflammation of the right uterine appendages. Abdominal section was now advised and agreed to.

The operation was performed on February twenty-one. The contents of the pelvis were matted together and roofed in by adherent omentum. This having been partially separated and turned aside, it seemed at first hopeless to attempt to unravel the tangled mass beneath. At length, however, a separation was effected, first of the left uterine appendages, then of the cæcum and appendix vermiformis, and lastly of the right uterine appendages. On the left side there was found a thin-walled

adherent cyst, the size of a large orange, behind the broad ligament and adherent to the floor and back of the left posterior fossa of the pelvis. This was ruptured during removal, a quantity of serous fluid escaping. (It was afterwards found that this was a collection of serous fluid in the connective tissue of the broad ligament, and not a true cyst.) The left tube was occluded and slightly dilated, but of normal consistence and not thickened. On section, after removal, it was found to contain blood-stained muco-pus, the mucous membrane being swollen and œdematous. The left ovary was normal. The cæcum and vermiform appendix formed part of the adherent mass on the right side. On bringing them into view after separation, the thickened peritoneal coat or the cæcum was found to be torn. The rent was repaired by three Lembert's sutures of fine silk. The appendix was normal. The fimbriated end of right tube and the right ovary (the latter enlarged to the size of a pigeon's egg and lying just beneath the tube) were very firmly attached to the upper part of the right lateral wall of the pelvis and the adjoining portion of the under surface of the anterior abdominal wall. On detaching them it was found that they had enclosed an abscess cavity, containing soft, purulent dèbris, evidently discharged from the open fimbriated end of the Fallopian tube. The wall of the pelvis where this abscess had been, presented a ragged, irregular surface. The right tube, much thick-

ened, elongated, and indurated, on leaving the uterus first turned forwards and inwards, forming a knuckle in front of the body of the uterus: it then ran directly outwards, the fimbriated end being attached to the pelvic wall, etc., in the manner already described. The tube was empty: its mucous membrane was swollen, and its fimbriated end highly congested. * The right ovary was large and œdematous. On making a longitudinal section through it there were found two abscesses containing thick greenish-yellow pus: one at the outer end, near the abdominal ostium of the Fallopian tube, equal in size to a cherry: the other at the inner end about half that size.

Both ovaries and both tubes were removed. There being an extensive hollow, with a considerable raw surface and much oozing of blood on the right side of the pelvis, it was packed with iodoform gauze. The abdomen was then closed.

The gauze was removed in forty-eight hours, a large quantity of brownish-red fluid, without ill odor, making its escape at the time. An india-rubber drainage-tube was inserted. An enema was administered on the evening of the third day, which acted fairly well and gave great relief. Flatus passed freely. There was no sickness after the second day. On the fourth day the quantity of fluid passing by the tube was still considerable: it consisted chiefly of altered blood, and had now an offensive smell. The patient was

lively and cheerful, but complained a good deal of flatulence.

The stitches were removed on the seventh day. There was suppuration along some of the suture tracks. The discharge from the wound had by this time become more purulent, but still contained a large admixture of blood. It was now only very slightly offensive. There was no abdominal distention, and the general condition was excellent. The appetite was good, the patient slept well, and the bowels responded easily to enemata. The drainage-tube was finally removed on March 16th (twenty-fourth day): the discharge was still purulent and fairly copious. The patient was gaining flesh, and was sitting up on a couch. She left the home a fortnight later in excellent condition. At the site of the drainage-tube there still existed a small sinus, which finally closed two months later, and gave no further trouble. She wrote from Broadstairs on June 27th to say she was going on remarkably well. She was suffering from flushes, noises in the ears, and other symptoms of the menopause, and complained of an occasional pain in the right groin: but she was a stone heavier than when she left the home, and appeared to be still gaining weight.

The pelvic inflammation in this case was clearly the result of septic infection at the time of labor. Symptoms of fever, preceded by an attack of shivering, set in two or three days after delivery, and contin-

ned for eleven weeks. There appears, then, to have been a period of a little over a fortnight during which the temperature was normal. But in the fourteenth week it again rose, and from that time various manifestations of blood-poisoning succeeded one another without interval up to the time of the patient's arrival in England in the middle of the twenty-fourth week after her confinement: so that the illness had been practically continuous during the whole of that time. The patient seems to have been left to the tender mercies of a careless and cruel nurse-midwife, who, so far from having conducted the labor antiseptically, habitually neglected the simplest rules of personal cleanliness.

With regard to the other possible sources of infection, gonorrhœa and tubercle, it was ascertained that the patient's husband had had no symptoms of gonorrhœa after his marriage or for the twenty-five years immediately preceding it, so that gonorrhœa may be safely excluded: whilst any suspicion of tubercle was removed by the condition disclosed at the operation. Moreover I have shown, in the introductory observations, that if any further evidence were needed to confirm the view here taken (as to the origin of the infection), it would be found in the position occupied by the Fallopian tube, a position it could scarcely have acquired had it not contracted its adhesions at a time when it happened to be lifted out of the true pelvis, its normal habitat, by

the physiological growth and development of the pregnant uterus.

It will have been noticed that I was in no hurry to operate. It appeared just possible, from the seat of the induration, that the primary mischief had occurred in the connective tissue, and that an abscess had formed at the back of the pelvis, had spread to the iliac fossa, and was about to make its way to the surface. The case, therefore, was kept under observation for a month, in the hope that abdominal section might be avoided. At the end of that time the signs of cellulitis, so far from having increased or extended, having under the influence of complete rest almost disappeared, clearly showed that the cellulitis had been secondary. A further result of the diminution in the amount of superficial induration was that there could now be made out, on bimanual examination, a distinct, hard, irregular mass in the situation of the right uterine appendages. There was, therefore, no need to defer operation any longer. It was clear, from the persistence of the pyrexia and other symptoms, that suppuration was present: and now that it had been shown to be intra- and not extra-peritoneal, the sooner the abdomen was opened and the pus removed the better. The condition disclosed was purulent inflammation of both Fallopian tubes, the purulent contents of the right tube having escaped from the abdominal ostium and formed an intra-peritoneal abscess between the fimbriated

end of the tube and the pelvic wall, to which latter the fimbriae had become adherent. The ovary, enlarged and adherent, formed part of the wall of this abscess, and had become secondarily infected. It was found on section to contain two distinct abscesses, one of them closely contiguous to the intra-peritoneal abscess, the other at the inner end of the ovary. Those who oppose surgical interference in these cases are accustomed to speak of operations undertaken for their relief as operations undertaken for the relief of pain rather than for the saving of life. I firmly believe that they save life much more frequently than is generally conceded, and that the case here related is an instance in point. If it be said, "Certainly in a case of ovarian abscess the operation is of a life-saving character, and is therefore justifiable," I could ask how in this case it could possibly be known, before the operation disclosed it, that there was an abscess in the ovary. Had the operation been delayed until the danger to life had been made apparent by the development of those violent symptoms that follow the bursting of such an abscess, the interference would probably have come too late. As it is, the patient has escaped this danger; and although the operation was one of great difficulty, and attended with considerable immediate risk, I believe it not only to have been justifiable, but to afford a striking instance of the saving of a life by timely intervention.

The next case is, in its main fea-

tures, curiously parallel to the one just described. Here, too, the inflammation resulted from septic infection at the time of labor, and so far simulated, at first, primary cellulitis affecting the posterior part of the pelvis, that operation was for a time on that account deferred.

CASE II.—II. W—, aged forty, residing at Sydenham, was admitted into St. Thomas's Hospital, February 23, 1894. She had been married twelve years, and had borne six children. She was delivered of her first child by the aid of instruments, the child being stillborn. For some months afterwards she had a thick yellow vaginal discharge, and although she had no internal pain, and was never ill enough to necessitate confinement to bed, she found sitting so painful that she was in the habit of carrying a soft cushion about with her. She had had no pain during her first pregnancy, but during all her subsequent pregnancies she states that she suffered more severely than anyone can know. Her last labor took place January 10, 1894, and lasted two days and nights. The child was puny, and it died within forty-eight hours of its birth. She says she was told that the cord and afterbirth were "rotten." She left her bed at the end of a fortnight, feeling all right. A week later she was seized with an attack of shivering, followed by incessant retching and vomiting for twenty-four hours. She had been in bed ever since, *i. e.*, for a period of three weeks, suffering from occasional attacks of shivering, symptoms

of pyrexia, and severe pain in the hips and lower part of the back and down the right thigh. For three days before admission she had diarrhoea, with loose watery stools.

On admission the patient was very ill and in constant pain. The right thigh was flexed on the trunk, any attempt to straighten it causing great pain in the groin. The temperature was 101.4° ; the pulse 104. The urine was loaded with urates, and contained a trace of albumen. Sp. gr. 1020. The tongue was furred, and there was inability to take solid food.

On deep palpation of the lower part of the abdomen the uterus was felt as a tender, firm, fixed, body a little to the right of the middle line, with its upper border 4 inches above the symphysis pubis. The length of its canal was 2 1-2 inches. On examination under ether a hard, irregular, nodular swelling was felt firmly attached to the back of the uterus: it passed upwards and to the right, where it became firmly attached to the brim of the pelvis. Nothing abnormal could be detected on the left side. The diagonal conjugate diameter of the pelvis was 4 3-8 inches. There was no depression of the lateral fornices of the vagina.

The patient's condition, so far from improving under the influence of rest, became steadily worse. The pain in the right groin increased in severity. The evening temperature remained high, reaching from 101.2° to 102.4° almost every day. The anorexia persisted. The bowels were constipated.

It was inferred from these symptoms that there was suppurative inflammation of the right uterine appendages, although no physical evidence of the presence of pus was forthcoming.

At the end of a fortnight, therefore, it was decided that an operation ought to be performed. The patient and her friends readily give their consent.

Abdominal section was performed on March 8th, 1894. The mass on the right side, having been exposed and brought into view, was found to consist of uterine appendages and cæcum matted together, the whole mass being firmly adherent to the pelvic wall. The Fallopian tube was seen running along the upper border of the mass. While the adhesions were being separated some pus escaped. The cæcum was much thickened by inflammation and extremely adherent. Fortunately the parts could be kept in view whilst this adhesion was being separated. The appendix vermiformis was quite free from the mass and healthy. A roughened and ragged surface was found on the wall of the pelvis. It had clearly formed part of the wall of an intra-peritoneal abscess between the pelvic wall and the matted uterine appendages, on which a similar surface was seen. This abscess was evidently the source of the pus that had escaped during the operation. The Fallopian tube communicated with this abscess through its open fimbriated end, which easily admitted a large probe. The ovary, which formed part of the wall of the abscess,

did not communicate with it. The mass, having been separated, was lifted up, tied off, and removed. A portion of the psoas muscle adjacent to the abscess was felt to be indurated by inflammatory exudation. A wound on the posterior surface of the uterus caused by the separation of adhesions was repaired by means of three sutures of fine silk. A serous cyst on the anterior surface of the broad ligament was emptied by puncture. The appendages on the left side were examined and found to be perfectly healthy. The abdominal cavity was cleansed by sponging. The vagina and rectum were examined and found to be uninjured. A glass drainage-tube was inserted and the abdominal incision closed.

The parts removed measured *en masse* 2 1-2 inches x 2 inches x 1 1-2 inches, and consisted of part of the right Fallopian tube, the right ovary, and a portion of the right broad ligament. The Fallopian tube was empty, but the mucous membrane was inflamed and oedematous. In the ovary, which, as has been already said, formed part of the abscess wall, were found two abscesses, one the size of a walnut, the other rather larger. These two abscesses communicated with one another by an ulcerated aperture, 1-4 inch in diameter, surrounded by inflamed ovarian tissue, and presented on their internal surface a similar ragged appearance. This surface was grayish-yellow in color, and was covered with purulent lymph. In other parts the tissues of the ovary appeared fairly healthy.

The temperature for the first twenty-four hours was normal and subnormal. On the second and third days it ranged between normal and 100.4°, after which it never reached 100°, and was generally normal. On the third day an india-rubber tube was substituted for the glass one, and a simple enema was administered, with the result that a large quantity of flatus was expelled. On the fourth day another enema was given with very good result, and the patient from that time was able to pass urine naturally. The sutures were removed on the ninth day, and on the twelfth day the drainage-tube was removed. The discharge became purulent on the third day, and after the removal of the drainage-tube the sinus still continued to discharge a little pus. There was considerable shock for the first two days, after which the patient rapidly improved in condition, and began to gain flesh. The right thigh regained its normal power of extension within a very few days after the operation. The patient left the hospital on the 9th of May, looking so stout and well and cheerful, and with so clear a complexion, that she was scarcely recognizable as the haggard, sallow, emaciated, miserable creature that she was on admission. There was still a very small sinus at the lower angle of the wound. She called to report herself on her return from the convalescent home three weeks later. She was in excellent condition, and felt better than she had done for several years. The sinus had not quite healed.

The condition of things disclosed in this case at the operation was so similar to that in Case 1, that the remarks upon that case apply almost equally well to this. Here, too, I firmly believe that the result of the operation was not only to restore health, but to save life. The mischief in the ovary had advanced a stage further than in the other case. There were, as in that case, two abscesses, but these, instead of being distinct, had communicated with each other by a process of ulceration.

One other point in the case merits a moment's attention, on account of the light it sheds on the immediate cause of the inability to extend the thigh upon the trunk in many cases of puerperal pelvic inflammation. The focus of greatest intensity of the inflammation, which was on the pelvic wall where the abdominal ostium of the Fallopian tube had become adherent, and where an intraperitoneal abscess had formed, was over the inner edge of the psoas, with the result that local induration of the muscle had occurred from inflammation of its connective-tissue elements. After the removal of the pus the muscle quickly recovered its function, and within a week the patient was able to extend her thigh completely and without pain or difficulty. This helps us to understand how, at least in some instances, the flexion and stiffness of the thigh are produced, and how it is that efforts at extension are attended with such a severe pain.

The third and last case, though

also one of ovarian abscess, differed in many particulars from the foregoing. It was almost certainly gonorrhœal in its origin; it had advanced to the stage of rupture, and the operation for its relief was too late to save life.

CASE III.—L. C—, aged twenty-two, single, a domestic servant, was admitted into St. Thomas's Hospital as a case of emergency late in the evening of the 24th of February, 1894, at the request of Dr. Burgess, of Streatham.

The patient was a fair-complexioned girl, with flushed cheeks, looking extremely ill, and complaining of acute pain and tenderness in the lower part of the abdomen, chiefly on the left side, where there was a swelling to be presently described. The temperature was 103.2°, the pulse 128, the tongue dry and coated with a white fur.

The following very imperfect history was all that could be obtained. The patient had only menstruated four or five times in her life, the first occasion being at the age of eighteen. She last menstruated about eighteen months ago. The flow, even when it did appear, was scanty, and did not last more than one or at the most two days. Except for an attack of pleurisy at the age of sixteen, the patient states that she enjoyed good health until the month of January, 1893, when, after a period of amenorrhœa lasting some four or five months, she was taken ill with pain and swelling in the abdomen. This illness lasted for several months. The swelling is

said to have disappeared about the month of July, after which she gradually gained strength, and in November she states that she was as well as she had ever been. During the illness she is said to have had several transient attacks of paralysis, evidently of a functional character. From November she remained apparently quite well, and was at work up to February 21, 1894, three days before her admission, when she was suddenly seized whilst at her work with acute pain in the lower part of the abdomen, chiefly on the left side, accompanied with vomiting and rise of temperature, and soon followed by swelling of the abdomen. She was so ill that she had to go to bed, where she remained until she was sent up to the hospital. On the day before her admission (February 23d) there was retention of urine, and the catheter was required.

On admission a swelling was observed in the lower part of the abdomen, rising out of the pelvis, and extending to the left side and upwards nearly to the level of the umbilicus. There was an obscure sense of fluctuation over the most prominent part. On vaginal examination the cervix uteri was found to be pushed against the symphysis pubis by a fluctuating tumor which bulged down the posterior fornix. The uterus lay immediately beneath the abdominal wall, a little to the left of the median line. The uterine sound passed the normal distance, 2 1-2 inches.

During the two days following the patient's admission the temperature

ranged between 101.2° and 102.8°. The general condition remained the same. The tenderness and paroxysmal pain were very acute.

It was evident that there was acute pelvic suppuration due to some pre-existing disease of the uterine appendages, and that the only hope for the patient was to evacuate the matter by operation. It was decided to perform abdominal section. The consent of the friends having been obtained, the operation was performed at 2 p. m. on February 26th. Immediately on reaching the peritoneal cavity and separating some adherent omentum, a quantity, estimated as at least a pint (16 fl. oz. being collected and measured in addition to what escaped), of thin, flaky, highly offensive pus flowed out. The upper part of the wall of the abscess was formed entirely by thickened and inflamed omentum, which formed as it were a dome over it. Behind and below the abscess was bounded by the posterior wall of the pelvis and the rectum, the latter much inflamed and thickened. In front lay the right broad ligament, enormously thickened by chronic cellulitis, and the right uterine appendages, in which the abscess had evidently originated. The uterus, rotated with its right side forwards and upwards, laid to the left and in the front of the abscess. After thoroughly douching the abscess cavity an assistant was directed to place his finger in the rectum, and the right uterine appendages were separated from their adhesions, brought into view, and removed. The right Fallo-

pian tube was so friable that it was torn in several places during the separation. It was much thickened from chronic inflammation. The ovary was represented by a thick-walled, empty abscess cavity 2 x 1 1-2 inches in diameter. In its wall was a rent large enough to admit the finger. Its inner surface was ragged and ulcerated, and covered in places with granulation tissue. The wall appeared on section to be composed of condensed ovarian tissue. The broad ligament at the line of section measured 3-8 inch in thickness.

The left appendages were next separated and removed. The ovary was converted into a small cyst, containing clear yellow fluid. The tube was thickened by chronic inflammation to such an extent that its wall in places measured three-eighths inch in diameter. It was tortuous and elongated. Its mucous membrane was pale and highly œdematous. The tube was empty, and its fimbriated end was open. There was excessive cellulitic thickening of the left broad ligament. A considerable portion of the inflamed and matted omentum, which had roofed in the abscess, was now ligatured in sections and removed. It was lined by a layer of adherent purulent lymph. The cavity was again flushed with a hot douche of solution of boracic acid; a glass drainage-tube was inserted, and the abdominal incision closed.

The operation lasted two hours, and was attended with much shock, especially during the removal of the right uterine appendages, when it

became necessary to inject twenty minims of brandy subcutaneously.

The patient's temperature after the operation was 97°, but it rapidly rose in the evening to 101°; the pulse at the same time becoming very rapid, weak, and irregular. At five o'clock next morning she became unconscious, delirious, and noisy, and she died at 5.30.

A post-mortem examination was made the following day by Dr. Herbert P. Hawkins, from whose notes the following is an extract: "There was a 3 1-2 inch median, sutured, unhealed incision between umbilicus and symphysis. On opening this up, it was found to lead into an abscess cavity of considerable size, situated almost entirely in the pelvis, containing about an ounce or so of dark brown, non-offensive, thin fluid.

"There was no affection, past or present, of the general peritoneum. The floor of the abscess, which lay practically in Douglas' pouch, was formed by the large flattened rectum below, and above by the free edge of the omentum, which dipped down into the pelvis. On the left it surrounded a large loose portion of the sigmoid flexure; on the right it was bounded by the pelvic wall and the psoas, but did not extend on to the iliac fossa. In front it was bounded by the uterus. Its wall was covered with tough shreds of false membrane, and the lower part of the rectum, where it came into relation with the abscess, was partially denuded of its peritoneum. The sigmoid flexure, the summit of the uterus, and a coil

that 5 cases of alleged cure by rest and medical treatment were followed up, but a few of them would not and to find these instances of non-response to this, where for a time the purposed collection proved unobtainable at its presence, but where it was at the whole quantity lasting the time for a brief, incident, and constituting a quite addition to the patient's life.

I have elsewhere (1904, *Annals of Pathology*, London, Med. Soc., November, 1904) cited numerous as the commonest frequency of most suppuration, where some amongst the causes of acute pelvic peritonitis and tubo-ovarian abscess, and to perform a complete case, consisting the most common form of pelvic suppuration. By the end of October, 1904, I had performed a tubal abscess in a case of pelvic suppuration, tubo-ovarian. In an early case, where

of these I found one at least supporting cysts of the ovary. In every case of the tubal abscess, the condition was associated with suppuration, with active purulent suppuration in the tube, and with chronic suppuration in the ovary.

These figures strongly support the view that in the great majority of cases, suppuration is the primary condition in the form of acute suppuration, cysts or simple abscesses (which are very difficult to differentiate from acute suppuration) being a secondary or partial suppuration.

I think that the Society will not think that to have the best opportunity of having in this communication. Our knowledge of suppuration and its treatment in the period it will be important that some so much a contribution to be made as is collected in the history of these cases may not be entirely negligible.

Hæmato-salpinx and Tubal Pregnancy Contrasted*

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I have here two specimens illustrating the two conditions, the first being offered by which is the subject of my paper.

(1) The two specimens consisting of the uterus and its appendages, was obtained from the body of a married

woman aged twenty, when I saw her for the first time on July 12 last, in consultation with Mr. Ferguson. She was the mother of three children, of which the youngest is eleven months old. This case was noticed at the end of the third week in June, i.e., three weeks before my case. I will mention what her last confinement the

* Paper read before the British Gynecological Society.

menses re-appeared, and they continued to recur regularly every four weeks till the beginning of June, with one exception, viz., in February–March, when the period was a week late. About the beginning of June she began to complain of pain in the right groin, and a fortnight later, while walking out in the neighborhood of her home, she was seized with a sharp pain which, in her own words, “quite doubled” her “up.” She had difficulty in getting home, though the distance was only short. She went to bed at once, and sent for Dr. English. The pain lasted for several hours until relieved by a sedative. In the evening of the same day the menstrual period made its appearance at its proper time, viz., exactly four weeks from the last. The flow was very free for about half an hour, and then ceased. On the 28th she had another attack of severe pain, and next day was carried into a neighboring hospital. On this day the flow returned, “in the usual way,” as the patient described it. From that time, and for more than a fortnight onwards, she had a continuous and sanguineous discharge, varying in quantity, at times very free, both fluid and coagulated. During her stay in the hospital, where she remained only a week, she had another sharp attack of pain, an aggravation of more or less constant pain complained of in the right groin. On July 6 she returned home. On the 13th, she had another attack of severe pain, and it was then that Dr. English asked me to see the pa-

tient with him. The rectum was so loaded with hard scybalous faeces that it was impossible to make even an approach to an accurate diagnosis. We could only discuss the case in the light of the clinical history, and this led me to discountenance the idea of tubal pregnancy. There was no tumor corresponding with a pregnancy of three months, and there were other considerations that need not detain me at present. A week later I saw her again, and then learned that the clearing out of the rectum had been followed by considerable relief from the pain, but that the sanguineous discharge was not affected. The rectum being now clear it was easy to make out a small swelling in the region of the right appendages, while the uterus was not enlarged. The fundus could be plainly distinguished through the thin abdominal parietes, but the back of the uterus could not be traced upwards from the cervix in consequence of some resistance in Douglas’ pouch. The left side of the pelvis presented nothing unusual. As it was evident that surgical interference was now called for, I admitted her the same evening into the Samaritan Free Hospital. Hitherto there had been very little rise of temperature, and after the journey to the hospital it was only 99.6° , while the pulse was only 88 at 8 P. M. Next day the temperature at 11 A. M. and 2 P. M. was 99.8° , pulse 84; the vaginal discharge was very free, and the pain still troublesome. At 5 P. M. the pain was so severe as to require a

sedative, for which purpose tr. op. and belladonna (10 minims of each) were administered by the rectum, and at 11 p. m. the dose had to be repeated. At 8 p. m. the temperature was only 98.6°. On the 22d. the patient began to be sick, bringing up her food mixed with bile; but as there was no appreciable rise of temperature, or alteration in the character of the pulse, the condition was regarded as due to gastric disturbance. She still complained of pain, and in the course of the day had two doses of the sedative. In the evening the vaginal discharge ceased. Food was withheld by the mouth, and beef tea injections were substituted. 23d. Sickness less troublesome, still bilious; no abdominal distension, on the contrary, abdomen rather hollow: no rise of temperature, but pulse up to 96. An anæma given in the forenoon acted fairly well. Slight return of vaginal discharge noted. Late on the evening of the 24th, although the temperature and pulse presented no variation, especially in the way of upward tendency, and the abdomen was still hollow, it became evident that the patient was losing ground, and arrangements were made for operating next day. Her condition then was more unfavorable, and just as I was ready to begin the operation the patient died under the anæsthetic.

A careful *post-mortem* examination, at which I was present, was made by Dr. Hebb, but it was unfortunate that forty-eight hours had been allowed to elapse. The pelvic viscera were then much discolored by diffusion of

the hæmatine of the blood, especially in the right side. In the course of the removal of the small intestine it was found that its integrity was abruptly interfered with at a point about six inches distant from the cæcum. Thence to the cæcum the intestine was firmly contracted. The point just indicated coincided with an adhesion of the intestine to a blood clot which had formed where blood had issued from the inner side of a swelling of the right Fallopian tube; with this exception the intestines were quite free. When they were got out of the way the pelvic contents were removed entire, and a more detailed examination was then made, eliciting the following facts. A small amount of blood had escaped into the peritoneal cavity, and had coagulated in Douglas' pouch, forming a bond of union between the opposing pelvic surfaces, the intestines floating on the top. The amount of clot would represent something under two ounces of blood, and appearances indicated that the effusion had been of a comparatively recent date. The right Fallopian tube was distended in its outer part or fimbriated extremity to the size of a tennis ball, and turning inwards upon itself had contracted adhesions with the ovary. A weak spot in the circle of adhesions observable in the specimen and presenting a smooth edge, had given way, blood had issued in small quantity into the peritoneal cavity, gravitating into Douglas' pouch, and coagulating there as well as in the opening, where it formed a plug. Appear-

ances also indicated that there had been only one bleeding, as the clot was quite uniform. To the clot, plugging up the opening, the intestine had become adherent, and paralysis of the lower portion of the gut ensued. After dividing the walls of the dilated tube a rounded, almost spherical body, was easily turned out. This body proved to be a solid blood clot. The tube thence to the uterus was quite patulous, and a surgical probe was easily passed along it. On the uterine aspect of the clot, where the tube necessarily presented a somewhat trumpet-shaped form, there was a small quantity of semi-fluid blood. The left ovary and tube were quite healthy. The uterus was cut open and presented the appearance of a healthy but somewhat undersized organ. There was nothing to indicate or even suggest the recent existence of a decidual membrane.

(2) The clinical history of this case stands in marked contrast with that presented by the second case, to which I now proceed to direct your attention.

This second specimen is an admirable example of ruptured tubal pregnancy. It was obtained from a lady to whom I was summoned by telegram on October 1 to Hampton Wick, by Mr. Fergusson of Richmond. On my arrival, about seven hours after the accident, the patient presented signs of emerging from a profound state of collapse. The history of the case was as follows: Age thirty-two, married, four children. Two years previously had an attack of

typhoid fever during pregnancy, and was prematurely delivered at the seventh month, in the third week of the fever. She was a strong, well-nourished woman. Menstruation regular and of normal type: last period seven weeks ago. On September 26 she began to have a colored discharge, somewhat resembling a normal period, and without pain. About 11 o'clock on the morning of October 1, while sitting at a table writing, she was suddenly seized with a sharp pain in the lower abdomen, followed by a feeling as if some warm fluid were rising up in the abdomen towards the diaphragm, and almost immediately afterwards she lost consciousness. When Mr. Fergusson arrived he found her in a state of profound collapse, and as soon as possible telegraphed for me, in the meantime adopting the usual means of treatment. Acting on the supposition that the case was one of severe internal hemorrhage, probably due to the rupture of a tubal pregnancy, great care was exercised in making an examination, especially in the way of avoiding unnecessary pressure. It was easy to make out that there was something unusual in the region of the right appendages, but although there was decided dullness on percussion over the hypogastrium, no definite tumor could be detected. It was agreed that perfect rest in the dorsal position, with the head low, should be observed, and very light diet administered, while stimulants should be avoided lest a too sudden reaction should bring about a recur-

rence of the hæmorrhage, which in her collapsed state, even to the extent of a few ounces, might, and probably would, prove fatal. The supposed nature of the ease and its probable cause were explained to the husband, and it was made clear to him that, while it was out of the question to think of operating then, nevertheless the question would have to be faced in the course of a few days. I saw the patient next day, and while she had considerably improved, I yet saw no reason to change my opinion. I took the opportunity of pointing out that the case was taking the course I had anticipated: that while as yet there was no rise of temperature, it was probable there would be within a few days, and that that would be a signal for interference. The following day the husband was the bearer of the report, which was of a most favorable character, and it was evident that the more the patient improved the more repugnant to him became the idea of an operation. How could an operation be necessary when his wife was going on so well? But the time had not yet arrived. On the morning of the 5th, the husband again brought me the report, which told that the temperature had risen from a subnormal state to more than a degree above the normal. The result of a long conversation was that I should see her again early in the afternoon, accompanied by some one who had had some experience of a similar case, and in whose judgment I had confidence, and that I should be prepared

to operate if my opinion were confirmed. To meet these requirements I selected a man who had seen some of Mr. Lawson Tait's cases, and was not without personal experience, and who, moreover, would be under the circumstances a *persona grata*—I mean my friend Mr. O'Callaghan. My opinion was confirmed, the husband's consent—I ought rather to say his permission—was obtained, and the operation was at once performed. Hence this specimen. There were several pints of blood, liquid and coagulated, in the peritoneal cavity. The left ovary and tube were examined, found healthy, and no further interfered with. The recovery was without notable incident.

Up to the time when the peritoneum was exposed I felt the heavy weight of responsibility as a very serious matter, but this was relieved as the dark color of the peritoneal contents, seen through the thin membrane, told of what was within, and completely faded away as the blood gushed forth when the peritoneum was divided.

Here there was a definite series of phenomena of which surgical experience has taught us to find the meaning, while a mere physical examination would only have landed us in confusion and doubt. The case reminded me very forcibly of one which was under my care in the Samaritan Free Hospital a few months previously. The arrest of menstruation, sudden collapse and general recovery were very similar. When, about a week later, the patient entered the

hospital, all signs of collapse had passed away, and the appearance of the patient simply denoted a certain amount of anæmia. The physical examination yielded a negative result and failed to find any justification for an abdominal section. Had the patient and her husband, one or both, seriously objected, I should not have contended against them. The only symptom was a slight rise of temperature. This case proved an invaluable experience to me, and the remembrance of it, still fresh in my mind, gave me confidence when placed in the difficult and responsible position which I have described.

Now in the case to which I have first called your attention the question of tubal pregnancy was discussed and the idea rejected on the following grounds. The interruption of the menstrual period for one week, four months previously, was the only thing to give countenance to it for a moment, but the fact that in the meantime menstruation had occurred several times with regularity and in normal form seemed to give it formal denial. Nor could it be said that the physical examination, admittedly imperfect though it was, gave it any support. Moreover, pain was much more severe and constant than is characteristic of tubal pregnancy, and partook very much of the character of dysmenorrhœa; for the pain was for the most part in proportion to the amount of blood passing away by the vagina. The pain may be called tubal dysmenorrhœa. This is not a far-fetched idea, for recent abdominal

surgery has taught us that the Fallopian tube plays an important part in the menstrual function. After ovariectomy in which the pedicle was treated by the clamp it was no uncommon thing to observe a sanguineous discharge from the cicatrix at the site of the stump during the menstrual period. I have operated on one of these cases for the cure of a ventral hernia several years after the ovariectomy, with two pregnancies occurring in the meantime, and it was not until I ligatured the pedicle and separated it from the abdominal wall that this phenomenon ceased. Furthermore, the *post-mortem* examination showed that while there were repeated bursts of hæmorrhage by the vagina, there was only one hæmorrhage into the peritoneal cavity, and it is extremely probable that this hæmorrhage took place within a week of the occurrence of the intestinal adhesion and obstruction. Hence we arrive at the conclusion that the pain in the earlier weeks of the patient's illness was due to the tension within the tube—a true tubal dysmenorrhœa. Examination of the clot within the tube showed that it was devoid of any cavity, and that it had been formed by successive accretions, the centre being older than the outside, especially towards the still patulous uterine portion of the tube. Nor was there at any time anything approaching or simulating the shock of an intra-peritoneal hæmorrhage. It appears to me, therefore, to be a legitimate conclusion from the facts dis-

closed by the *post-mortem* examination, added to the clinical history of the case, that here we have to do with an example of hæmorrhage into the Fallopian tube unconnected with pregnancy.

What a contrast these two cases present!

On the one hand we have a slight, temporary interruption of menstruation, followed by its normal re-establishment for several periods, pain for several weeks, more or less continuous, but with frequently recurring severe attacks of a paroxysmal character, along with vaginal hæmorrhage varying in quantity and bearing a tolerably close correspondence with the character of the pain, and definite *post-mortem* appearances negative of pregnancy. On the other hand we have complete arrest of menstruation lasting over two periods, a slight vaginal discharge for three to four days without any pain, and a sudden sharp pain followed by collapse from which the patient slowly recovered, and an absolute demonstration of the occurrence of pregnancy. The contrast is striking.

The President, referring to the first case in the paper, said that instances of limited hæmato-salpinx were not very rare. Tubes were sometimes met with filled with blood and the size of a walnut without any history of pregnancy. He did not gather whether the hæmorrhage took place through the fimbriated opening or through a gap in the wall of the tube. Two months ago he had met with an unusual form of internal hæm-

orrhage. He was called to see a lady from whom he had removed a small ovarian tumor four months previously. The account that was given of her symptoms was, that she became suddenly collapsed after a hot bath. He found her recovering from the collapse, and presenting, on examination, a hard lump behind the uterus. Owing to the improvement he gave a good prognosis. But some days after he was telegraphed for and found her very anæmic. Her condition was so grave that he opened the abdomen at once, and found it to be full of blood. As the hæmorrhage had then ceased, he washed out the abdomen and closed the wound; but she had already lost so much that she gradually sank, and died forty-eight hours after operation. The source of the hæmorrhage was evidently in the neighborhood of the stump of the broad ligament.

With regard to Dr. Bantock's second case—the clinical history was a surer guide to the diagnosis of tubal gestation than of any other condition. The previous sterility; the amenorrhœa with slight uterine hæmorrhage; the lump behind the uterus; and especially the decidual cast, when present—these were quite diagnostic.

Dr. Mansell-Moullin said he was specially interested in Dr. Bantock's second case, because he had one recently at the West London Hospital that was very similar. When the patient had been in hospital for a week, and keeping quiet, all the symptoms of rupture suddenly came on. He was called down to see her

one Sunday, and the diagnosis was then quite clear. He operated the next morning. She made a very good recovery.

Dr. Bantock told them that in his case, although there was collapse, and there was no doubt about the diagnosis, yet he waited several days before operating: why was this? Statistics had shown that 80 per cent. of those that died, died within the first twenty-four hours. He would like to ask Dr. Bantock, also, what course he would advise with the gestation sac developing within the broad ligament. At what period would he operate?

Dr. Heywood Smith thought that the chief interest centred round the case of ectopic gestation. To what did Dr. Bantock attribute the rise of temperature which he had predicted, and which occurred? Was it to inflammatory process? and if so, might these not complicate the case unnecessarily. What was the proportion of cases in which a second hæmorrhage occurred? and was not the risk of this increased by waiting? Of course if a clot formed in the rent, the opening might be blocked and further hæmorrhage checked: yet, if a second rush of blood occurred, some oozing at least would take place which might be enough to threaten life, and so cause a risk which would be avoided by early operation.

With reference to Dr. Mausell-Moullin's second point, he thought there was no question as to the propriety of operating as soon as the diagnosis was made out, without wait-

ing for the symptoms of rupture to supervene.

Dr. Leith Napier remarked that there were several points of interest about the first case. The source of hæmorrhage had not been ascertained, and the cause of death must be regarded as, to some extent, accidental. In former years many hypothetical explanations were given of hæmato-salpinx; but he thought that Dr. Bantock, with his large experience, might be able to throw some light on the pathology of hæmato-salpinx when not due to gestation. At a sister Society, a little time ago, he had shown two tubes, the seat of hæmorrhage, where the most careful examination failed to show any evidence of gestation. In that case the uterus was enlarged. Without a microscopical examination it was very difficult to discriminate between a simple hæmato-salpinx—with amenorrhœa, enlargement of the uterus, recurrent attacks of pain, collapse, weakness and general malaise—and tubal pregnancy. Hæmorrhage during the first three months might accompany pregnancy, whether intra or extra-uterine. A possible explanation of Dr. Bantock's case was that it was a tubal abortion, with hæmorrhage through the abdominal ostium, before this had got sealed up. He would submit, with deference, whether Dr. Bantock had not been too cautious in dealing with this case, and whether the patient's life might not have been saved by earlier operation. It would be interesting if Dr. Murray could give them some

account of the circumstances of the death under the anæsthetic, and the restorative measures employed.

Dr. Shaw Mackenzie pointed out that in the specimen which Dr. Bantock showed, obtained from the case of ectopic gestation, the fimbriated end of the tube was not sealed. Bland Sutton had stated that the ostium usually becomes sealed by the tenth week. He had himself examined many specimens, at the Royal College of Surgeons and also in the Museums of University College and the Chelsea Hospital for Women, including five specimens of Dr. Cleghorn's, reported in the *Journal of the British Gynecological Society*. Now, whereas, in a simple salpingitis, the end was nearly always sealed, in a tubal gestation it was just as often open. A specimen lately exhibited at the Society by Mr. Taylor showed the same thing. On going carefully over all these specimens, he came to the conclusion that the sealing or otherwise of the ostium depended on the position of the ovum in the tube. If the gestation sac was near the fimbriated end, the latter became closed, but if it was situated at the uterine end, the fimbriæ were not involved. In Dr. Bantock's specimen, the gestation sac was quite at the inner end of the tube, and the rent in the tube was in the same situation.

Dr. Mansell-Moullin had asked at what time operation should be done. When the rupture was primarily upwards, the symptoms were those of collapse, and operation should be done at once. When the rupture

occurred downwards, into the broad ligament, the symptoms were not so severe, and it was justifiable to temporise. But once a diagnosis of tubal gestation was made, ruptured or not, there was little use in delaying operation. Dr. Cleghorn had pointed out, in the notes of his cases alluded to, that in every case a marked pulsation of the tubal vessels could be felt on bimanual examination. He believed that they knew of no kind of lateral rapidly-growing tumor, with pulsating vessels, except ectopic gestation. Of course, as has been pointed out to him, there was likely to be little or no pulsation when collapse had occurred; but otherwise he believed that it was a sign of considerable value.

Dr. Heywood Smith asked what anæsthetic was used at the second operation, and how: and what the cause of death was.

Dr. Leith Napier asked if inhalation of oxygen was resorted to.

Dr. Stormont Murray said that the patient was very weak before the operation: chloroform was used, with Clover's inhaler. She took it well for a few minutes, then gave a gasp, and she was dead. Oxygen was not used. Artificial respiration and other means were adopted for twenty minutes, but it was useless. The cause of death was heart failure.

Dr. Bantock said, in reply, that he had long been in doubt as to the source of the blood in hæmato-salpinx, and as to the possibility of its occurrence apart from pregnancy: but the case he had related had decided him

that it could be so. He and Dr. Hebb had been specially careful in the *post-mortem* examination, and had concluded that there was only blood clot, and no pregnancy. It was now known that the tubes played an important part in the function of menstruation: and this part was discovered and demonstrated by the hæmorrhage which took place from the stump of an ovarian pedicle treated by the clamp. The case recorded by the President was in a different category: the hæmorrhage there could not have come from the tube, as this has been removed; but the case was important as showing that a patient might die of hæmorrhage from the seat of ligature of an ovarian tumor. Dr. Mansell-Moullin had asked, why delay operation? But he thought that when called to a woman in collapse, with a hardly perceptible pulse, it would be most unwise to operate at once; if she was not going to rally, she would die whether operated on or not, and he should prefer not to run the risk of blame for the fatal issue. Moreover, during collapse there was no active hæmorrhage going on, because the stream was so weak that coagulation occurred. So on all ground it was better to wait till reaction set in. The coagulation he spoke of would not, of course, prevent a further hæmorrhage: and he had operated on a patient after a third rupture: he operated after the collapse had passed off, and she recovered. They must bear in mind also that the operation itself was a source of

shock. Dr. Mansell-Moullin had asked also when one should operate, in the early weeks. If the tube had ruptured into the broad ligament, it was best left alone. If not ruptured, the diagnosis was very doubtful, for physical signs could no be relied on, and they must consequently trust to the history: and the history itself was always equivocal before rupture had occurred. The date of rupture would probably depend on the seat of gestation: in the outer, more distensible part of the tube, it would be later: in the inner part it would be earlier: and the latter cases were the most fatal. He had recorded one case of tubal pregnancy going on to term. Dr. Heywood Smith asked if the rise of temperature was due to inflammation: he thought not, but rather to irritation: it was not very easy to explain, but he had generally found it to occur.

Intra-peritoneal pressure was not enough to stop hæmorrhage: it was more rational to say that after a certain amount of hæmorrhage, the stream became so weak that coagulation occurred round the ragged edges of the tubal opening. He did not know if he ought to plead guilty to the charge of not operating soon enough. But when he first saw the patient the rectum was so full that he could not make anything out: and he only saw her again a week later, when he sent her into the hospital. He did not recognize the cause of the sickness as being due to obstruction of the bowels, which it

probably was, but attributed it to gastric catarrh.

He quite agreed with Dr. Shaw-Mackenzie's views, except that he had had no experience of the pulsation, perhaps because he had had to deal with cases of collapse. At the same time it was not at all uncommon

to find very large arteries in the pelvis in cases of fibroid.

A committee, consisting of Dr. Bantock, Dr. Giles and Dr. Shaw-Mackenzie, was nominated by the President to report upon the specimen of tubal gestation.

Some Observations on Chloroform as an Anæsthetic.*

DR. J. S. LOCKHART,

CAMBRIDGE.

So much has been said and written upon this subject that it may seem presumption on my part to bring it before this Society: but there are several points that I know could be profitably discussed, and I hope that each member present will shed the light of his experience upon them. It seems to me that chloroform as an anæsthetic is gaining favor with us, at least I know a number of surgeons and obstetricians who use it in preference to ether in many cases where they would not think of doing so a few years ago.

It commends itself to the surgeon on account of the ease with which it induces anæsthesia, its pleasantness to the patient, absence of struggling, and its convenience, elegance and avoidance of unpleasant after effects, as compared to ether. To the obstetrician for its analgesic effects, which

may be utilized without producing anæsthesia or nausea and vomiting. Ether is generally regarded as the safer, yet taking the whole medical world I think chloroform is more used as an anæsthetic. In all the countries of Europe, as you know, and also in Canada for the most part, chloroform is the favorite anæsthetic, while in the United States, and especially in New England, ether seems to be regarded as the only safe one. Is the general disuse of chloroform with us due to a just appreciation of its dangers, and the only sure way of avoiding them by not using it, or is it the result of a lack of familiarity with it, and a certain trepidation which one feels when using it where ether is regarded as the only safe anæsthetic. There is no doubt that generally speaking ether is the safer of the two, though no less an authority than Prof. Mikulicz of Breslau makes that claim for chloroform, but

*Read before the Gynæcological Society of Boston.

are there no conditions in which chloroform may be administered with as little fear of untoward results and with much greater comfort, if not greater safety to the patient, not to speak of the surgeon. In short what are the indications for chloroform anæsthesia, how and where can it be administered with equal if not greater safety than ether? This question involves the consideration of its physiological action and its lethal effect. Bedford Brown of Virginia, in an article on "The Action of Chloroform as observed in a series of cases of extensive cranial injuries," gave the following resumé: The action, of chloroform on the human system must be regarded as a complex action, and not as many regard it, a simple one. Cerebral anæmia, the abolition of consciousness and the function of sensation go hand in hand. They begin, progress, and terminate simultaneously; when anæsthesia is pushed still further, anæmia of the medulla and spinal cord commences, and as it progresses the vital functions of respiration, reflex action, circulation and heat generation succumb, until when the anæmic condition of the brain reaches a point where there is not sufficient arterial blood furnished the brain and medulla to sustain vital action, then the respiratory center begins first to indicate signs of failure. Then follow paresis of the vaso-motor or circulatory centre, and finally of all reflex action.

Sudden arrest of the heart's action, or of respiration in the initial stage of chloroform narcosis, has been ex-

perimentally proven by European observers to be due to reflex action from the filaments of the trigemenus in the Schneiderian membrane to the vagus. Dr. Frank of Berlin says that chloroform first stimulates the action of the nerve centres from cerebrum to medulla oblongata, and the spinal cord then inhibits their action, generally in the same succession, but it does not always follow this regular sequence, centers low down often being the first to indicate signs of failure. We must also bear in mind that ominous reflex action, which may suddenly interrupt respiration or circulation, or both at once, also the mechanical obstruction to respiration from closure of the air passage by spasm of the glottis. The falling back of the tongue or its spasmodic pressure against the posterior pharyngeal wall. This summary of the action of chloroform in narcosis which is the result of numerous experiments and observations on animals and man, should be a criterion by which to judge of its indications as an æsthetic, its modes of administration, as well as the means used when indications of danger appear. Ether on the contrary produces congestion of the cerebral vessels and general engorgements of the venous circulation. Pulmonary œdema has been known to result from long etherization. G. C. Woods gives as the result of his researches on the action of ether on the kidneys, that prolonged ether narcosis is capable of producing marked congestion of these organs with cloudy swelling of the

convoluted tubes, and that repeated prolonged etherization may produce desquamative nephritis. If chloroform may be given at all in preference to ether, and I will leave it for you to decide, it would appear that its physiological action as well as clinical experience establish the following as its principal indication. Where operation is required in cerebral congestion; in convulsions were it necessary to give anæsthetics, on account of its action on vessels of the brain, as mentioned above; in pulmonary congestion, bronchitis, pneumonia; in fat people who are especially liable to venous engorgement, which might result in obstruction, respiratory, in ether narcosis; in renal affections, though chloroform as well as ether possesses the power of irritating the kidneys, yet chloroform acts in so much smaller quantities as an anæsthetic that it should be preferred in these cases, when operative procedures are necessary; in aged people, especially when marked atheroma of the arteries is present, as ether might cause cerebral hæmorrhage; in infants and very young children a minute quantity of chloroform produces anæsthesia and ether is very irritating to their delicate mucous membranes. But especially in obstetrics is chloroform the anæsthetic par excellence. I will not enlarge upon this point, but I think any one who has used both in this connection will testify to this fact. Our Professor of Materia Medica at the University of New York, Dr. Wm. H. Thompson, used to teach

that chloroform is perfectly safe on the battle-field and in the lying-in chamber, and we regarded him as good as any authority on this subject. In operations on the nose and mouth chloroform recommends itself by the facility of its administration by vaporizing it through a canule, and the avoidance of the venous engorgement of ether.

Clinical experience as well as its physiological action demonstrate that chloroform should be given in the smallest possible amount that will produce anæsthesia, and in the most diluted form, with air to prevent any reflex action on the vagus. The anæsthetizer should devote his entire attention to the patient, and on the slightest evidence of its inhibitory action on the nerve centers, as evidenced by increased pallor, or by the changes in respiration or circulation, the anæsthetic should be withdrawn, and, if necessary, means to excite the respiration and circulation be employed. The dangers to guard against may be summed up as follows: Obstructive respiration failure, non-obstructive respiratory failure, cardiac failure, and that imperfectly understood reflex action, which in spite of the best precautions may suddenly arrest the respiration, or circulation, or both at once. In Bilroth's clinic in Vienna they administer chloroform with a mask and a drop bottle, giving it in small quantities and drop-wise. The anæsthetizer is supplied with a bag and tongue forceps. If dangerous symptoms occur, the mouth is immediately opened, tongue drawn

forward to give free access to the air, artificial respiration is performed and also rythmical compression of the heart to stimulate the circulation, as well as hypodermic stimulation if necessary. During a winter's attendance at that clinic no case approaching a dangerous condition was seen. After a minor operation a few slaps with a wet band and the patient would get up and walk out. In Paris, Professor Champoniere's clinic is always provided with a rubber bag containing oxygen ready to be used in case of an emergency. In England pure chloroform is superseded to a great extent by the A C E mixture, which it is claimed obviates the dangers of chloroform and the unpleasantness of ether. In Fenwick's clinic in London they bring the patient under the influence of nitrous oxide gas, and then maintain the anaesthesia with ether; this is quick, and all coughing and struggling is

avoided. In operations on the nose and mouth, bromide of Ethyl is employed, being used in one clinic over 3000 times without accident. It would appear with the number of general anaesthetics, each having special advantages, and also of local anaesthetics with cocaine leading, we should be able to make an intelligent selection of the one most appropriate in a given case, and we should not be confined to the use of one alone. When all these anaesthetics, through purification or better means of administration, shall have lost that element of danger which at present clings even to ether, the beautiful dream of the banishment of pain and disease, beginning with the discovery of ether and drifting on through the maze of chloroform and later anaesthetics, enhanced by the wonder of the germ theory and the later victories of bacteriology, will receive another confirmation of its realization.

REVIEW OF GYNÆCOLOGY.

ON ACUTE INFLAMMATION OF THE CÆCUM AND ITS APPENDIX. By W. THORNLEY STOKER.

So much has been written about typhlitis in connection with modern developments of abdominal surgery, and so much said as to the exact diagnosis and the treatment of the various inflammations which attack the cæcum, its appendix, and the tissues about them, that I desire to clear the ground for myself and

others who may sympathize with my difficulty in accepting all that has been put forward in this context. The question of exact diagnosis is that which puzzles me most, and I must confess to inability to follow or apply in general the nice symptomatic distinctions which some writers draw between inflammation of the cæcum, of its appendix, of the arcolar tissue behind it, or of the peritoneum which covers it. If localizations so exact exist—and I

doubt their frequency—their discovery is more likely to be made on the operating table or in the *post-mortem* room than in the bed, and they are therefore of little help to the surgeon in guiding him as to the treatment he should adopt.

The cases to which I propose to refer are those of acute inflammation. What I have to say does not apply to relapsing inflammations, which present acute recurrences with chronic intervals. With them we have a more educated acquaintance; we recognize their clinical features, during their quiescent intervals we can often determine their exact nature by physical examination, and we have now attained definite views as to their proper treatment. I mention them only for the purpose of excluding them: they almost invariably have their origin in a diseased appendix, and usually demand removal of that organ during a chronic interval. It is because they always first bring themselves into prominence by an acute attack, and because operative treatment during that attack is so unfavorable when compared with laparotomy during a quiescent interval, that I desire to formulate my experience concerning the nature and treatment of acute attacks of typhlitis, be they primary or secondary. Of these relapsing inflammations we may, for the present purpose, dispose with the remarks:—

a. That they generally demand laparotomy, usually for the purpose of removing a diseased appendix.

b. That the operation, if done during an interval of freedom from acute disease, is seldom dangerous or unsuccessful.

The knowledge of these facts makes us more anxious to be able to overcome initial attacks of typhlitis by minor treatment, on account of

the grave danger of operation at such a period, and of the frequency with which a first attack proves the only attack. The same reluctance to operate should obtain during subsequent acute relapses, in view of the confidence with which we may open the peritoneum when they have subsided.

If I use the term typhlitis, I do so for want of a better, and not because it is in any way exact. I mean it to comprehend inflammation in or about the right iliac fossa of the varieties variously named cecitis or typhlitis, peri-typhlitis, para-typhlitis, and appendicitis. That an acute attack of one of these may occur without the other is evident, but the persistence of one of them without the other is a rare incident, and one not usually open to exact diagnosis.

I have seen a very large number of cases of acute primary typhlitis, and in nearly all of them have found it impossible to make an exact diagnosis as to the seat of the lesion, and in spite of the much writing which should have made us exact, have found myself lamentably behind the numerous arbitrary writers on this subject. To be sure, it is generally safe to accuse the appendix in these cases, because it presents the most characteristic symptoms and signs, because it undoubtedly is usually the seat of the initial inflammation (for reasons to be estimated hereafter), and—less worthy reason—because by the time operation or the progress of disease has rendered matters more evident, the enterprising and exact opinion will be justified by finding it in a state of inflammation, which, if not primary, cannot be proved to be secondary. In other words, when it is, exceptionally, not the seat of the initial disorder it is almost sure to be attacked subsequently.

In a most instructive paper by Mr.

Treves (*B. M. J.*, March 9, 1895), he deals with the influence of the *Bacterium coli commune* in producing typhlitis, and the circumstances under which it assumes the abnormal virulence which enables an otherwise harmless inhabitant of our intestines to become so destructive. With what he says on that branch of the subject it is not possible to disagree, it is logical and practical; but when seeking for the circumstances under which the appendix becomes the seat of recurrences he goes hardly far enough. It is not necessary to assume deformity or abnormality to explain why with, or without, the assistance of this bacillus the appendix becomes so frequently the seat of inflammation. If it be conceded that a foul or constipated large intestine predisposes to the virulent development of this micro-organism, it must be allowed, *a fortiori*, that the narrowest, most obscure, and most unused byway of the bowel is the likeliest breeding-place for mischief. Also, the frequency with which appendicitis appears only once and does not relapse is a strong argument in favor of the view that the normal appendix is generally that affected. There is one passage in Mr. Treves' paper which appeals most strongly to experience: it is that in which he remarks that the number of cases in which there has been only one attack is much greater than that in which there have been recurrences. This is a fact that will speak loudly to those who have seen a large number of cases of typhlitis, and it is at once an argument against the ready adoption of operations in first attacks, and against the probability of a deformity of the appendix being present. Recurrences are rare in children and of greater frequency in vigorous adult life. Observation has taught that

operation in acute typhlitis is highly fatal, and should be resorted to only in very exceptional cases. Farther, certain lines of minor treatment are often successful, at all events in tiding over the immediate danger, and usually in producing permanent relief. Once we allow that persons who suffer from single attacks are much more numerous than those who are subject to relapses, we have found the strongest reason, in face of the fatality of laparotomy in the acute stage, for using every other reasonable means. *I have rarely seen a case of acute typhlitis in which the large bowel was not full of old feces, and I have still more rarely seen a case in which the colon could be unloaded in which recovery did not take place.* So true is this, that of late years I have nearly always regarded the emptying of the colon as ending the immediate danger to life, provided of course, that the inflammation has not proceeded to the point where an abscess has formed or perforation taken place.

The question as to when laparotomy should be done in acute typhlitis, is one that is often difficult to answer. To be able to formulate an accurate reply to it would be to have reduced this branch of surgery to an exact science, and to be able to set aside the advantage which experience gives. So far as I am able to state my opinion on the matter, it is that if an abscess has formed or perforation taken place, laparotomy should at once be resorted to, but that, short of these misfortunes, operation should be delayed until the last possible moment. Of course there are exceptions to such a rule, but they are to be learned only by clinical study and cannot well be conveyed by words.

We are now at the top of an epidemic wave of operative treatment

of inflammatory disease of the cæcum. It has risen too high, and, like other disturbances, will presently subside to a mean level. In 1889 I ventured to express strong opinions against the propriety of usually performing laparotomy in acute intestinal obstruction due to collections within the lumen of the bowel (*Trans. Acad. Med. Ireland*, 1889). This opinion I have since advocated still more forcibly (*B. M. J.*, Jan. 26, 1895), and experience and observation of the practice of others have led me to form an equally strong judgment against the general wisdom of operating in cases of acute typhlitis, except under the conditions just expressed, or where other means have failed. These cases are of common occurrence in all classes, and at most ages except very advanced ones. There is a pleasant poetic justice in the reward of our surgical anxieties, implied by the fact, as I have observed it, that acute typhlitis is one of those complaints commoner among patients of the better class than in those in poorer circumstances. It is more frequently met with in private than in hospital practice. This is perhaps due to the high feeding and constipation which are more usual among well-to-do people than among poor ones.

Putting aside the ultimate question of operation, it is to be considered what measures are at our disposal to empty the bowel and so place it in as strong a position as possible to resist the poisonous effects of the colon bacillus. It is so generally the case that the inflammatory process is initiated and kept alive by faecal accumulations, and that if it has not proceeded to suppuration or perforation it will be arrested if the bowel can be emptied, that too much weight cannot be attached to the means of effecting this. There are two lines of

treatment to be considered—the negative and the positive: the first embracing things that are to be avoided, the second things that are to be done.

Under the former head may be grouped as both improper and in common use—

1. The local use of irritants.
2. The employment of opium.
3. The abuse of feeding.
4. Reliance on the value of

temperatures.

1. Local applications capable of causing any irritation are to be avoided. Anodyne, or other liniments, too hot poultices, or any treatment likely to inflame the skin, ought not be used; such measures have no good effect on the bowel, they obscure symptoms by rendering the skin tender, and should operation be unfortunately called for, it is not done to the best advantage through an inflamed integument and areolar tissue.

2. Opium should be used most cautiously, if employed at all. The number of acute bowel cases in which it is pushed to such a point as to conceal symptoms is large, and most surgeons can record abundant instances in which patients have been regarded as not alarmingly ill, because they have been kept narcotized until their condition was desperate. The only indication for its use is pain, and by concealing this it may keep the surgeon in a fool's paradise.

3. The abuse of feeding is a constant danger. In their anxiety "to keep up the patient's strength," solicitous friends give food to an embarrassing extent. It is difficult to make them understand that even fluids, if taken freely, can increase the loading of the disordered bowel. The quantity of material which can be introduced into the intestine by steady and persistent administration of repeated

small quantities is astonishing. If vomiting be present the mistake is even greater, for the patient becomes exhausted by it and by the failure to assimilate even the small quantity of nourishment he otherwise could. Of all food, that which I most dread is milk. The popular ignorance that it curdles when introduced into the stomach, and that it is not easily digested by persons suffering from intestinal obstruction, is productive of infinite harm. It is not only dangerous, because its good reputation induces its administration in larger quantities, but also because the curds are quite indigestible in these cases, and the use of milk adds to the solid load in the bowel. I have over and over again seen acute typhlitis stopped by a judicious process of starvation. This is particularly true in cases of children, and singularly difficult to carry out in them, owing to the anxious prejudices of mothers.

4. The value of temperatures as a diagnostic aid in all disturbances involving the peritoneum is slight. They are very deceptive, and any undue reliance on them will lead to trouble. They may range high in insignificant cases, and are even more likely to be very low in grave examples of disease.

So much for things to be avoided. What of more positive treatment? This may be arranged under the heads of—

1. Diet.
2. Local applications.
3. Purgatives.
4. Enemas.

1. The food should be fluid, and of as small a quantity as will sustain the patient. If vomiting be present it ought to be reduced to the lowest possible point. Rectal alimentation is impracticable owing to the necessity of inducing the bowel to act.

The choice lies between meat juice, beef-tea, whey, water, and some form of alcohol. The distressing thirst which exists in these cases is most difficult to overcome. If it be sought to relieve it by introducing much fluid into the stomach, it provokes vomiting. Ice increases the thirst, and by insidiously introducing water into the stomach tends to induce vomiting. Frequent rinsing of the mouth with hot water, and swallowing occasionally a teaspoonful of warm water, are the best means at our command to allay thirst.

2. The only local application of much value is a soft linseed meal poultice, not so hot as to redden the skin. It should not, as has lately been pointed out, be covered with waterproof material, which by preventing evaporation, lessens its cooling qualities. I have never seen any other local measure of use.

3. Purgatives, if cautiously used, are not to be dreaded, except in cases of great acuteness and intensity. If there be vomiting, they must be administered by the rectum, but in that event they are of less value. The sulphate of sodium is perhaps the best, and if a purgative by the mouth is permissible, I usually order it in two drachm doses, repeated every hour until an effect has been produced or four doses have been taken. But purgatives should be avoided unless the enema has failed, or until it has commenced to be effective, or except in cases where complete obstruction does not exist in the beginning of the attack.

4. Of all means at our command, the enema, if properly employed, is the safest and best agent for the relief of a loaded large intestine. The method of employing it which I now invariably use, is that described in the *British Medical Journal*, of January

26, in the present year. To the enterprising operating surgeon it has one objection—it is extremely slow. I have often spent two hours at the bedside of a patient suffering from impacted large intestine, with or without typhlitis, before faecal matter began to come away. But when it does begin to come away, the corner is generally turned. If the process is tedious to the surgeon, it is at all events not exhausting to the patient. There is nothing of which I have become more thoroughly convinced than that nearly all cases of acute typhlitis have their origin in a loaded colon, except the fact that if that colon can be unloaded in time, recovery will take place. The process of faecal impaction of the large intestine begins in the sigmoid flexure, it gradually extends in a proximal direction, first involving the descending colon, then the transverse colon, and lastly, the ascending bowel and caecum. The time at which the proximal accumulation may set up inflammation is most various. The hostile effects of the bacillus may show themselves in some patients who have accumulation not nearly reaching to the caecum, in others it is not evident until the caput coli itself is involved. But this in no way upsets the theory of faecal accumulation as an exciting cause of typhlitis. It is merely an assertion of what every pathologist knows—that some people and some bowels are more susceptible to morbid influences than others. If it once be conceded (and can it be denied) that the colon bacillus is rendered hostile by constipation, it seems evident that purgation is, if achieved early enough, likely to be a remedy for its ill effects. If, as I believe, the bowel can best be emptied by a process of washing, a process perhaps laborious, but almost certain in its result, then it

has a claim for careful employment. Beyond the theory of the matter is the practical fact, which I trust will obtain acknowledgment, that purgation, if obtained before perforation has occurred or an abscess formed, is generally the end of immediate danger in typhlitis.

I do not produce a list of cases in illustration of my views, although my observations have been numerous and extended over many years, because conclusions, and not isolated instances, are what we want in matters of debate. My conclusions, very anxiously arrived at, are—

1. That in this, as in some other acute peritoneal inflammations, operation is most unfavorable, should be seldom resorted to, and has been too freely adopted; and

2. That purgation, if it can be induced, is the best remedy at our disposal, and that the most likely and safest way to effect it is by hydrostatic washing with warm water and a soft tube.—*Dublin Journal of Med. Science*, June, 1895.

MOVABLE KIDNEY. By GEORGE BEN JOHNSTON, M. D.

IN the consideration of the subject I have chosen to present to you I wish to emphasize three propositions:

1. Movable kidney is extremely common.

2. It is capable of producing very distressing symptoms, and in many instances is a menace to life.

3. It is curable by a simple and safe operation.

My own experience with movable kidney from a surgical standpoint extends back a little more than three years. Prior to the first nephrorrhaphy, which I performed in May, 1891, those cases I met with were given little or no thought,

Since the date mentioned I have looked with more interest on my cases, and have come to marvel at the frequency of the malady. I have examined a limited number of persons likely to be the subjects of movable kidneys since my first operation for its relief, and in a comparatively small number of subjects have encountered twenty-seven cases. Edebohls, who has studied five hundred cases, fixes the rate at one for every five or six women examined. Linder gives about the same rate. Osler gives no statistics, but mentions it as a common occurrence in his hospital wards. The records of these observers and my own cases justify the assertion that it is a common malady.

Causes. It is not surprising that we should so frequently find movable kidney when we reflect upon the *causes* which produce it.

It occurs more often in *women*. I have never seen one in a male subject. *Age* is a factor in its production. My own cases have been in subjects varying in age from twenty to thirty-five years. In only one instance have I seen it in a woman over forty years. *Both* kidneys may be movable at the same time. The right is the one that is affected in the preponderating majority of the observed cases. This is accounted for by the *relation of the kidney to the liver* on this side. In women who wear corsets from early girlhood the lower segment of the chest is constricted in such a manner as to interfere with its expansion during the act of respiration. In the normal respiratory act unhampered by constricting corsets and bands, the contraction of the diaphragm tends to push the liver downward, while at the same time it is pitched forward. In the chest limited in its expansion this normal

movement or rhythm of the liver is interrupted, and instead of pitching forward the direction is reversed, being downward and *backward*. This causes the thick posterior border of the liver to impinge upon the upper end of the kidney. The constant pounding of the heavy liver, repeated twenty-five thousand times every twenty-four hours, will in many instances dislodge the kidney from its bed. Even when only slightly loosened the concussion it sustains in walking, lifting, straining at stool, together with the continual hammering of the liver, will soon increase the displacement and cause a freely movable kidney.

The ease with which these cases produce movable kidney is much increased when from any cause there is a rapid absorption of the perirenal fat, such as occurs in wasting diseases. The absorption of the perirenal fat will of itself produce movable kidney.

Two anatomical facts help to explain the preponderance of *right* over *left* kidney displacement: (1) the greater length of the *right renal artery*; and (2) the *firmer attachments* of the left kidney. The reflections of the peritoneum from the spleen and the colon to the left kidney help to hold that organ in position.

I have twice seen a movable kidney follow obstruction of the ureter. It happened that both of these cases were on the left side. The increased weight of the kidney, due to accumulated urine and congestion, must have played an important part in the etiology of the dislocation in these two cases.

Symptoms. In many cases of movable kidney there are no symptoms. In others the symptoms are extremely distressing, producing great mental disquietude, as well as

intense physical suffering. All neighboring organs may participate in these disturbances and cause a simulation of other disorders, chiefly such as come within the domain of the gynæcologist.

The amount of pain and annoyance occasioned by movable kidney do not bear a direct relation to the degree of displacement. I have observed a number of cases of freely movable kidney in which the symptoms were trivial, while in others where the displacement was slight they were distressing. It seems that the symptoms increase in severity until the dislocation amounts to eight or ten centimetres, and when the displacement exceeds this distance many of the pronounced symptoms may abate.

The symptoms first observed are disturbance of the digestive apparatus or nervous system. Chronic gastro-intestinal catarrh is very commonly associated with it. Constipation, flatulence, indifferent appetite, eructations, colicky pains, and general abdominal discomfort accompany many cases. In not a few, icterus is visible. The nervous symptoms arise from tension on the renal plexus of nerves, and this brings about epigastric pain, annoying and dragging sensations, palpitation, and a feeling of apprehension. All these symptoms are somewhat aggravated when the patient attempts to lie on the opposite side to that of the movable kidney. Uncommon exercise, mental anxiety, or fatigue intensify the symptoms, and will likely produce nausea and vomiting, tenderness of the abdomen, and pain quite like that of renal colic, all of which may persist for many hours after the exciting cause is removed. Menstruation invariably augments the disagreeable symptoms.

In a proportion of cases the symptoms are grave. Torsion of the ureter is common; partial occlusion by bending is not uncommon, inducing a distention of the pelvis by dammed-up urine. Hydronephrosis may follow. Calculus is thus invited by reason of poor drainage.

When a patient presenting any of the above-mentioned symptoms, particularly a female, presents himself or herself, a physical examination of the abdomen should be insisted upon. Indeed, so common is this affection that no examination of a woman suffering with continued abdominal and pelvic symptoms should be considered complete without palpation of the kidneys.

Diagnosis. While the symptoms already given may strongly point to a dislocated kidney, the diagnosis must depend upon finding the displaced organ by bimanual palpation. In the common run of patients it is a very easy matter to grasp the dislocated kidney between the opposing hands, one placed over the lumbar region and the other over the abdomen just beneath the free border of the ribs. The size, shape, density, and degree of movability will be readily perceived. A freely movable kidney when thus palpated will sometimes escape from between the fingers so readily as to produce the same sensation that one experiences when he shoots a wet seed from between his thumb and finger, and it may be so far removed from the position in which it was first found as to require a diligent search for its recovery. There are several acts and postures which may aid in engaging the kidney when attempted by bimanual manipulation: coughing or a deep inspiration will dislodge it when displaced upward and sheltered by the ribs: leaning forward when in the

sitting posture will also bring it within reach. The knee-elbow posture will sometimes enable you to discover it.

Apart from tumors of the kidney itself, the condition most likely to be mistaken for movable kidney is distended gall-bladder. Only a few days ago I did a successful cholecyst-enterostomy for distended gall-bladder, in which case there was also a movable kidney. Thus we may have both conditions present in the same subject. In differentiating a distended gall-bladder, the history, the usually anterior position of the tumor, the difference in the planes of attachments, the constant situation of the gall-bladder, and the variable situation of the kidney are sufficient to render the diagnosis comparatively easy.

New growths in the abdomen may be confounded with movable kidney. Here the character of the suffering, the cachexia, and often intestinal obstruction, together with the shape and density of these growths, are in sharp contrast to the history, symptoms, and mobility of the kidney. Repeated examinations, and, if necessary, anæsthesia will enable one to establish the diagnosis in doubtful cases.

Operation. Nephrorrhaphy is not indicated in every case of dislocated kidney, but only in such cases as manifest distressing or dangerous symptoms. When gastro-intestinal disturbances impair the general health, when nervous symptoms are severe, when the dragging abdominal pains are constant, when disease of other organs is simulated, when hydro-nephrosis is threatened, when one or more attacks of torsion have occurred, the operation is imperative. The method I have settled upon, after a trial of several, is as follows: The

subject is prepared as for abdominal section, purged with salts the day before, solid food withheld for two days preceding the operation, and the body cleansed with warm baths. On the evening before, the affected side and back are shaved and scrubbed with green soap and water and a wet pad of bichloride applied. This remains on until the patient is put upon the operating table. This dressing is then removed, and a final washing is practised. The patient is placed in a semi-prone position, with a firm pillow or pad (preferably Edebohls') placed under the side, so as to render prominent the affected side, thus increasing the ilio-costal space. The incision is made commencing a half-inch below the twelfth rib and toward the outer edge of the erector spinæ muscle. This is carried in a slightly oblique downward and outward direction to near the crest of the ilium. The bleeding, which is usually trifling, should be checked, as it occurs, by fine ligatures, so as to keep the wound clear of blood and unhampered by the presence of the forceps. When the cut has reached the edge of the quadratus lumborum, the aponeurotic extension of the transversalis is severed, when the finger reaches into the renal space. The hand of an assistant presses the kidney from the front into its proper bed. The fatty capsule is torn through and the kidney exposed through its entire length. The kidney is carefully examined by both inspection and palpation. I have often, with perfect impunity, delivered the kidney through the abdominal wound, which enables me to palpate the pelvis and upper end of the ureter. The aseptic finger is made to sweep about the kidney gently for the purpose of slightly irritating and disturbing its fatty

bed. This I deem important as conducing to a certain amount of exudation, which renders the subsequent adhesions stronger. The kidney is next placed as nearly as possible in its normal position, and a medium-sized suture in a curved needle, not a Hagedorn or one with severe cutting-edges, passed first through the deeper portion of the cut wall, then well into the substance of the kidney, and finally through the other side of the wound. The ends of this suture are intrusted to an assistant, who makes enough traction to keep the kidney in the position desired. The fibrous capsule is now split on the convex exposed border and the margins slightly turned back, making a long, narrow band of exposed kidney-substance. With fine silk and a small curved needle the reflected edges of the capsule are stitched to the deeper portion of the wound by interrupted sutures, usually four on a side. When these are snugly tied, the large suture, which should be placed nearer the upper than the lower end of the kidney, is tied. Great care must here be practised in order that there shall be no considerable pressure from this suture, the aim of which is to give support and more securely fix the position of the kidney during the healing process. All the sutures should now be closely cut. The upper portion and middle of the lumbar wound, particularly that part traversed by the suture passing through the substance of the kidney, is closed by three or four deeply placed interrupted sutures. The lower half of the wound should be packed with strips of iodoform gauze, the packing to be fitted snugly to the exposed part of the kidney and to fill well the open wound. An ample dressing of iodoform or sterilized gauze is placed over this, a firm

compress over the kidney to support it, and these held securely in position by a binder.

I have gone into great detail concerning the technique of the operation, because I believe that success requires an observance of such details. I wish particularly to insist upon the treatment of a part of the wound by the open method. This in my opinion adds much to the safety of the operation, as well as greatly enhances the result. The only case (my last) where I did not follow this plan of treatment gave me trouble by suppurating, and thus necessitated the re-opening of the wound a week after the operation, and finally required packing.

The after-treatment is simple enough, the essential point being confinement in bed on the back for four weeks, at the end of which time the adhesions are sufficiently firm to maintain the kidney in position.

In spite of my predilections for ether, I am in the habit of using chloroform in this operation for reasons which are obvious.

CASE I.—Mrs. J. F. J., aged thirty-four years; twelve years married, no children. An invalid many years. Fell from a horse when a girl; later found a tumor in the right side; consulted a surgeon, who pronounced it an ovarian tumor. Gave iodide of potassium three years; this produced no change in the size of the tumor. Consulted me in March, 1891. Bimanual examination revealed a movable kidney of the right side. Symptoms distressing.

Operation May, 1891. Incision V-shaped. Treatment of kidney that indicated in the account of technique. She made a prompt and excellent recovery. I examined this case two years later, and found the kidney securely fixed.

CASE II.—Mrs. A. E. J., aged thirty years: married, four children. She discovered four years ago a movable tumor in her right side. She consulted the same surgeon, who, as in Case I., diagnosed a tumor and prescribed iodide of potassium, and promised to operate when the tumor grew larger. The tumor did not grow larger. I saw her first in April, 1891. Bimanual manipulation revealed a freely movable kidney, capable of descending into the right iliac fossa. The principal symptoms in this case were intense nervousness, apprehension, and depression almost amounting to melancholia. She repeatedly told me she thought she was "crazy," and was wholly unfit for the performance of her domestic duties.

Operation was done in April, 1891, by the V-shaped incision. When the kidney was brought into the wound a cyst as large as a hen's egg was found on its convex border. This was amputated, and the raw surface sewed in the wound in the usual position. The recovery in this case was uninterrupted. The mental depression soon disappeared. She grew healthy and cheerful, and her general health rapidly improved. This patient became pregnant, and was delivered of a fine child on April 23, 1894. I attended her, and immediately after her delivery made an examination of the previously movable kidney, and found it firmly fixed.

CASE III.—Mrs. W., aged thirty-four years: married, no children. Began to suffer from dyspepsia and nervousness after an attack of typhoid fever. Her health did not recuperate promptly, and she remained lean. She had dragging, gnawing pains in the abdomen. She discovered a lump in her side, and consulted me concern-

ing it in June, 1891. Diagnosis, movable kidney.

Operation was done July, 1891. A single incision was made as described above, and the kidney anchored in the usual way. The recovery was prompt, her general health rapidly improved, and all the symptoms disappeared. This case remains cured.

CASE IV.—Mrs. R., aged twenty-two years. Frail and delicate from girlhood. At the age of fourteen she was skipping a rope when she felt something give away in her side: she was never strong afterward. She became nervous and hysterical, and when her menses appeared a year later she suffered intensely. I saw her in October, 1891, and diagnosed movable kidney.

Operated November, 1891. Recovery satisfactory. In six months her general health was greatly improved and the dysmenorrhœa cured. She was examined two years later, when the kidney was found fixed and her health better.

CASE V.—Miss K., aged twenty-three years. Healthy as a girl. After lifting a heavy weight felt a pain in her left side. This gradually increased and became very distressing. Her health failed entirely, and she suffered much from digestive disorders and palpitation. She was treated for heart disease. I saw her in December, 1891. Diagnosed movable kidney, and did nephrorrhaphy in March, 1892. Recovered with complete cessation of all symptoms. I examined her in July, 1894, and found the cure complete.

CASE VI.—Miss E., aged twenty-eight years. Slender and delicate as a girl. Health began to fail at twenty-two years. Took the rest-cure with some benefit. She con-

sulted me in July for menstrual disturbances and severe nervousness. Examination discovered movable kidney on the right side.

Operation August, 1892. Gradual abatement of symptoms, and remains cured.

CASE VII.—Mrs. M., aged thirty-eight years; eight children. Found a lump in her right side. Consulted a physician in Baltimore, who pronounced it a distended gall-bladder. I saw her first in November, 1892. Diagnosed movable kidney. Her symptoms were distressing. Nephrorrhaphy, December, 1892. Recovery. Kidney remains fixed.

CASE VIII.—Miss L., aged twenty-six years. Healthy as a girl; was inclined to be stout; laced to reduce her waist. Began to suffer with dyspepsia and nervousness, and lost flesh. Symptoms increased in severity. She grew quite lean and feeble. Consulted me in December, 1892, when I diagnosed movable kidney and commencing hydro-nephrosis.

Operation December, 1892. The kidney was much congested, and the pelvis distended. Restoration with fixation relieved all symptoms and restored her health.

CASE IX.—Mrs. H., aged forty-four years; three grown children. Health began to fail four years before consulting me. Diagnosis, left movable kidney.

Operation January, 1892. Health restored. Kidney remains fixed.

CASE X.—Mrs. P., widow, aged thirty-one years; one child. Four years prior to this time she rode much on horseback on the advice of her physician, hoping to relieve chronic constipation, dysmenorrhœa, and nervousness. All of these symptoms were intensified. A tumor in the right side was discovered by the patient herself, and I was consulted.

She was lean, with relaxed abdominal walls, and a diagnosis of right movable kidney was easily made.

Operation August, 1893. It is impossible to wish for a better result than was gotten in this case.

CASE XI.—Miss R., aged twenty-six years. At the age of twenty-one years began to suffer with irregular menstruation and failing health. Had both local and general treatment without benefit. Consulted me in March, 1892; found movable kidney, and advised operation.

Operation April, 1892. Recovery complete, and great improvement of health.

CASE XII.—Miss U., aged twenty-two years; healthy as a girl. Began to suffer with abdominal symptoms after an attack of malarial fever. Health became very poor. Frequent attacks of colic, intractable constipation, depression of spirits, and dragging pains in her right side. Examined and diagnosed movable kidney. Recommended nephrorrhaphy, which was done in May, 1892. Recovery complete; health excellent.

CASE XIII.—Miss T. B., aged twenty-two years. A slender young woman, whose health had been poor for several years. I treated her for six months for gastro-intestinal catarrh and intense nervousness without benefit. At the end of this time I made an examination and found right movable kidney. Operated on her in October, 1893. Her recovery was prompt and complete; remains well and enjoys perfect health.

CASE XIV.—Mrs. M., aged twenty-five years; one child. Consulted me in August, 1893, for what she thought was consumption. She had a cough and gastro-intestinal disturbances. Physical examination of the chest disclosed no disease there. The right kidney was freely movable.

Nephrorrhaphy November, 1892. Cough disappeared and general health restored. Rapid increase in body-weight. The kidney remains fixed and her health excellent.

CASE XV.—Mrs. L. E., (N. C.), aged twenty-three years: two children. Consulted my friend, Dr. Long, for pelvic trouble. She had been an invalid for a year: the larger part of this time she spent in bed. She was markedly hysterical and despondent. Diagnosis, right movable kidney, endometritis, retroflexion and salpingitis of the left side. I operated on her in April, 1894. In this case I accidentally opened the peritoneum: the small cut was closed and no harm resulted.

She made a satisfactory recovery. Later Dr. Long curetted, removing the left tube and ovary, and stitched the fundus to the anterior abdominal wall at one sitting, from which she likewise recovered. Her health is much improved, but not vigorous as yet. Dr. Long examined her three months later, and reports great improvement in her symptoms. The kidney remains fixed.

CASE XVI.—Mrs. L. E., aged thirty-one years. Twice married: four children by first husband, none by second. I attended her in the first three labors, which were easy and natural. After her fourth labor her health began to fail: suffered dragging pains in the abdomen: had frequent and violent attacks of colic, and exceedingly nervous. Resided nine months in Baltimore, and there in April, 1894, had a vaginal hysterectomy performed for what was said to be cancer of the uterus. In August of this year she consulted me for what she supposed to be an ovarian tumor. I found a freely movable right kidney. Attributed present

symptoms to this, and advised operation in the Fall.

Operation October 24th. Recovery from operation prompt. It is too early to say what the result will be.

CASE XVII.—Miss L. H., aged twenty-one years: delicate girl: suffered much at menstrual periods. Consulted Dr. Southgate Leigh, of Norfolk, in the Summer of 1894. Movable right kidney was diagnosed. I saw her in September, and confirmed Dr. Leigh's diagnosis: also diagnosed renal calculus. Two weeks after I saw her she had an attack of renal colic and passed a gravel as large as a pea. Nephrorrhaphy October 27th. Delivered the kidney through the wound and critically explored the pelvis: found no other calculus: completed the operation by closing the external wound. This is the only case in which I departed from the open method of treatment, and is the only one in which I had suppuration, and was obliged to reopen the wound. This case is still in the hospital, and is rapidly improving.—*Annals of Surgery, Feb., 1895.*

MENSTRUAL DISORDERS IN SCHOOL GIRLS. By J. T. WILSON, M. D.

A DISTURBANCE of the menstrual function in girls who are attending school is a frequent occurrence. More specially do we find this the case with girls who reside at the boarding schools: and frequent character of the disturbance is dysmenorrhœa. Next in frequency is a suppression of the flow. While menorrhagia is comparatively rare at this age, yet it does sometimes occur and may be severe.

The physical development of girls previous to puberty is very commonly neglected: but little attention is

given to the proper selection of diet, exercise, clothing and sleeping hours. To this neglect is due, in many cases, these functional disorders which too readily give rise to well-established and permanent diseases.

If the physical system of our girls was expanded by a healthy growth in the three or four years previous to puberty, and the same length of time following it, their minds would receive such culture as would conduce to healthy development of the brain and a training that would tend to systematize and fix habits: at the critical time of puberty the epoch would be established with less shock to the system and without a nervous explosion; we would have fewer sickly, delicate girls, less hysteria, insomnia, and disturbance of the menstrual function. If under trying circumstances these troubles should arise, there would be less difficulty in certifying them.

In our boarding schools, even in our best and richest colleges, are found a considerable per cent. of pupils suffering from some form of menstrual disorder, with morbid or lost appetites, constipated bowels with its frequent accompaniment, dyspepsia and insomnia to a more or less degree, headaches, backaches, sallow complexion, flabby muscles, an acne eruption, anæmia, and leucorrhœa.

There is a combination of causes for this state of health. It is generally about the age of puberty that most girls take up their residence at boarding schools. In the majority of cases there has been no attempt to develop their muscular system, no control of appetite, no selection of diet. They have been permitted to eat anything to which they had taken a fancy, and rarely dressed with that degree of judgment necessary for their protection and conducive to health.

They have had no instructions in female hygiene, and though they may appear rosy and healthy, they do not possess the muscular solidity, the mental control, and the ready adaptability to surrounding circumstances so necessary to resist the mental and physical changes through which they must pass. There has been no restraint upon their actions and no systematizing of their habits.

We should not forget that the nervous system maintains over all the organs of the body a dominating and controlling influence, and is brought into its greatest activity about the age of puberty. When the girl begins to develop, her physical and mental being changes, as well as her character and habits: her emotional system is most impressionable.

The out-of-door sports and romps to which she has been accustomed are prohibited: she is told they are not suited to her age and position, hence she must be confined in-doors and her complexion bleached; that her figure must be changed, and she is moulded out of shape with a tight corset, diminishing her size to one-fifth or one-third. Around this are tightly tied and hung several heavy skirts, compressing the heart and pushing it up out of place, squeezing the liver, interfering with the portal circulation, displacing the stomach, disturbing the digestion, dragging and pushing down the abdominal and pelvic organs, producing congestion and displacement, interfering with their functions, arresting the development of the body, embarrassing respiration, and productive of hysteria. She assumes unnatural postures, abnormal gaits, and awkward and painful movements of the body generally; her feet are encased in shoes ill-shaped and several sizes too small.

This is the most important period

of her life, a time to which she is subject to most changes, the system is more susceptible to disturbing influences. It is a time when trivial impressions may leave indelible tracings, when the foundations of future health or disease are laid, and thus she leaves her home, probably for the first time, to remain away from her mother's oversight, and enters school. Here she meets changes new to her on every hand: she is among strangers, thrown, to a great extent, upon her own responsibility, is subject to the routine diet, badly cooked it may be. Crowded into a small, ill-ventilated room with several companions, begins her daily life, having assigned to her from six to ten studies in addition to music and art. She is required to rise at an early hour for breakfast, then the greater part of the day is spent in the recitation-room and study-hall with several hours at the piano—which is nearly as bad as operating a sewing machine—inducing ovarian and uterine congestion. She neglects her daily functions, and then begins her troubles.

Our American girls are pampered and petted and spoiled from their very infancy, and at the critical time of life, with all the disadvantages of dress, diet, habits, impatient of control and ignorant of the functions of their sex, or have been taught too much and misinformed about them, are rushed into society or placed in boarding school and crammed with the full curriculum of the college. Her parents and friends expect her to graduate with all the honors in an incredibly short time. She must enter the contests for all medals, must be most conspicuous at all the many daily and nightly exhibitions during commencement week. This nervous strain, rush, and mental activity, the constantly conflicting emotions, the

continual brain tension from all this excitement will react on the other organs of the body, and the breakdown will be very apt to come sooner or later in most cases. The foundation is thus laid for a life of invalidism. The tissues and ligaments of the uterus are relaxed, and there may be displacement, and the nervous tension may cause hyperemia. The consequences are weak backs, diminished muscular tone and nutrition, digestive ailments, loss or morbid appetites, habitual constipation, cold feet, painful or disordered function, or complete suppression. So common is this cessation in boarding schools that teachers, in many instances, look upon it as immaterial and unworthy of consideration, and are ignorant of the dangerous sequences. Then follows a train of a varied character of nervous symptoms and hysterical attacks. After all this mental strain, all this dash and emotional excitement, all this cramming of the ordinary literature of the day, of the classics, of music, and painting, and elocution, and almost the entire day confined in class-rooms, what have we left? In many cases almost a physical wreck, a mental egotism, and a superficial, impractical education, illustrative of the fact that "a little learning is a dangerous thing."

Improper clothing, badly-cooked food, insufficient sleep, too many hours at study, too many hours shut up in the class-rooms, and thumping away at the piano with hands and feet, while the nervous system is strung up on a high key, with the effusive sounds of the instrument vibrating through the brain, and the teacher's voice shouting out the numbers and making a correction; with a neglect of or ill advised physical culture, too little recreation; at the end of the term a week of exhibitions,

of concerts, of late hours, and loss of sleep, requiring renewed exertions and borrowing a stimulus from the increased excitement, with which to keep up. Is there any wonder that discordant notes should creep into the execution of an operatic piece? Is there any wonder that menstrual disorders, nervous prostration, and neurasthenia should result?

And when the time comes for her to assume the duties of true womanhood—to become a mother—she is in no condition to pass through the ordeal of that physiological process with ordinary ease and safety; is in greater danger of suffering from the accidents consequent upon it.

The peculiar organization of woman is too much ignored, and she herself is not taught the necessity of care and discretion at her periodical epochs. At the schools too many studies are imposed upon them or permitted at their own solicitation. The number of years set apart for the finishing of the course are too few. During the term they spend too much time in-doors, striving to win the medals, to keep up with her more gifted sister in literature, art, music, etc., stealing the necessary hours from sleep, till past the midnight hour, straining her eyes by a dim light, half concealed for fear of being discovered, preparing for a brilliant exhibition of her talents at the commencement exercises. All this cramming and excitement, pomp and parade at the public commencements, are not so much the fault of the schools as it is of the parents who demand it, eager to see their daughters take a conspicuous part in the *role*; and, yielding to the gratification of the parents, these daughters spur the jaded and overworked system to excel in their special parts, and

this at the expense of nerve force and body waste.

When this change in the young girl is established—sometimes with an effort—usually no notice is taken of it, no modification made in the habits and modes of life; it is always a delicate period, these monthly returns; always a time of some excitement and weakness, and change of disposition, but ordinarily no rest, mental or physical, is allowed, no recreation, no quietude, but little heed given to this periodical act of nature's expression of womanhood, no attention paid to the susceptibilities and mental perversities that accompany it. It elicited the following expression from Prof. George J. Engelmann, in his presidential address to the Southern Surgical and Gynæcological Association: "Among our social customs, there are many which have wrought injury to woman. I cannot even touch upon all these. There is but one of which I shall speak, and that the most dangerous of all, more or less underlying all other causes of ill-health. It is the ignorance of the functions of woman by woman, by the mother, and her ignorance of its import."

The digestion of a majority of school girls is more or less affected, the diet is not always selected, frequently cannot be with the care that it should be, and often the cooking is most lamentable. Too much fried grease, hot bread, tea and coffee, rich pastries, and too much sweets are allowed to supplant the well-cooked, more easily-digested, substantial articles of food, with good nourishing qualities. The stomach is turned into an experimental chemical laboratory, into which a great variety of incompatible substances are emptied to insult or vex that much abused

organ. When the time comes round for her periodical function, her brain is overworked, her body is exhausted, her nervous system irritated, and her flow comes on with much effort, amid pain and distress, or fails altogether. She is without the care, advice, sympathy, and soothing encouragement of a sensible mother, so grateful and helpful. Is it any wonder that the poor child gets homesick, is unable to sleep, and sometimes worries and frets herself into a fever? After the commencement, the graduate returns home, her brain crammed with literature, her mental vision sated with art, her ears ringing with music, her body sickly, puny, and weak, with its flabby muscles, its overstrained nervous system, its digestive disorders and menstrual disturbances, unfit for the duties of domestic life, unfit for the high mission of womanhood.

Very rarely do we hear of any trouble of the sexual system until after the period of puberty, but the foundation for such diseases is often laid in early life, by the neglect of the physical system and the necessary training. There is often an hereditary feebleness of body that should be trained, developed, strengthened, and prepared for its natural functions.

There is not necessarily organic disease of the genital system in all cases of menstrual disorders, though I believe the rule will prove some pathological condition of ovary, uterus, or vagina. I have seen girls of healthy appearance, of good color and muscular development, enter school with a history of good health and regular function, who, after two or three months, would suffer from amenorrhœa or dysmenorrhœa, without losing flesh or color or appetite, and without symptoms of disease of the genital organs, as ordinarily manifested, but

upon close study of their characters and dispositions, they would be found to be excitable, impressionable, and probably suffering from constipation. I have formed the conclusion that undue expenditure of nerve force, the mental tension, together with the want of fresh air, sunshine, and agreeable recreation, were the principal combined causes in these cases.

We can frequently trace amenorrhœa to an injudicious bathing of the feet in cold water, getting wet, or changing flannels too early: in truth, any of the menstrual disorders may be caused by these, and neglect of outdoor exercise and physical development, over brain work and excessive development of the nervous system, shock, improprieties in dress, imprudence during menstruation, insufficient sleep, habitual constipation. I speak principally of the condition and causes affecting girls while at school.

Many of them readily develop some of the neuroses, which are manifested in different ways, and are sometimes the only objective symptoms of an ovarian or uterine disease. They begin to fail, lose appetite, grow pale, distressed by headaches, spine-aches, a sense of exhaustion, and disordered functions. It is sometimes difficult to differentiate between a pathological state and a reflex neurosis.

The treatment of these disorders, under surrounding conditions, is no simple matter, as has been indicated above. The treatment ought, in fact, to begin at home, before the age of puberty, before the patient enters a boarding school, by instructing the mother in the necessary female hygiene for her daughter, in the care of diet and digestion, in suitable dress, in muscular development, and especially should she be trained to a sufficient moral restraint, that her own

will power can be exercised so much to her advantage, and while teaching her how to care for self, and its importance during menstruation, yet lead her away from all other thoughts of the sexual system, keeping her a girl as long as possible: insist upon the great necessity of following well-established rules during her absence from home, so that the changes may come and find a healthy, well-developed physical system, prepared to carry on the new functions. It ought to be remembered that a large number of girls inherit a tendency and a predisposition to these functional disturbances, and uterine and ovarian disease, and this remembrance should be turned to good account by training and moulding the physical system into strength, symmetry, and beauty: not a grace and beauty that is temporary and flitting, but one that is solid and permanent. It is our duty to take an active interest in the care of the physical life of girls from infancy, institute a reform in the present modes of rearing and educating them, and rescue them from the physical degeneration that we unhappily so often meet with. It is the greatest and highest duty of the family physician to institute this early hygiene of girlhood, and to guide them into healthy and vigorous womanhood. There is no glamour in this part of his work, no flashing of the plumes of success in the gradual triumph of persevering and continuous effort, as with the fascinating results of the gynecologist's glittering and mutilating knife, but with vigilance, patience, and perseverance, brilliant results will be obtained.

The boarding schools, with few exceptions, are not generally prepared to give such patients the care and attention the condition demands, nor

can they make such preparation until parents are taught the necessity of it, and are willing to co-operate and accede to the requirements expedient for good health.

The best results are obtained from complete rest at this period, diminishing or cessation of the studies and study hours, absolute suspension of piano practice, most of the time spent in a recumbent position, in a quiet, well-ventilated room, with the best of sanitary surroundings. This period of rest, at the critical time, is of prime importance. A good purgative, to thoroughly empty the bowels, a more delicate, nutritious diet, that digestion may not be labored. These measures should anticipate for a day, if possible, the expected flow: she should be warned against and protected from exposure to cold, from cold baths and injudicious change of clothing, kept away from emotional or nervous excitement. Nerve sedatives, with a proper degree of caution, are important: of these, the bromides take highest rank. Valerianate of ammonia, camabis indica, hyoseyamine, apiol, all have their places, and are important aids to tide over the period. The preparations of opium are too dangerous to tamper with. There is, at this time, a depraved or altered mental condition, which it is not well to pass unnoticed. She should be kept tranquil and soothed by a kind but firm hand. When the patient is feeble, diffusible stimulants are very valuable. Ammonia and camphor do good service. Alcoholic stimulants are sometimes necessary, especially in case of menorrhagia, when considerable blood has been lost. The effects of massage, when the patient is kept at rest through her period, acts both as a sedative and tonic, and is of inestimable value, healthful control of the nervous

influences, warm baths, mustard plasters, hot applications to the pelvis, feet, and counter-irritation to the spine, plenty of sleep, and kept in a cheerful mood.

Between the periods she should be under surveillance, and great care should be taken of her health. If the tongue is coated and digestion is bad, nothing can be done until this state of affairs is corrected, especially should the habit of chronic constipation be overcome. In malaria, quinine, iron, arsenic, and mercury in suitable doses, at proper intervals, when the system has been prepared for them, are the remedies *par excellence* in most cases. Suitable clothing is of much importance: in winter wollen shirts, and especially drawers, should be insisted upon to protect the abdomen, pelvis, and thighs: this garment is much neglected: the feet should be kept dry and warm. Too many studies should not be required, nor too much piano practice. She should not be allowed to sleep in an over-crowded, ill-ventilated sleeping-room, the heating of which is so often neglected, sometimes too hot and then too cold. Too much stress cannot be laid upon the necessary out-of-door exercises, recreation and amusements. So also should too violent muscular exertion be condemned. Regular bathing and friction of the entire body in order to keep the skin in good function, and as a revulsive, is a valuable daily luxury. She should, in fact, have the advantage of all hygienic measures that can be accorded her.

So intimately connected is the nervous system with the sexual organs of woman that a disturbance of one will make a powerful impression upon the other, but in the treatment of these cases we should be careful to avoid adopting extreme measures, endeavoring to distinguish

between a central lesion and a reflex neurosis. The prominent symptoms of one system will sometimes mask those of the other. Drugs hold a subordinate position in the treatment of these troubles. The so-called emmenagogues are comparatively infrequently prescribed in the present day. The hygiene, the general care of the girl's health, the attention to all the details in this regard, the building up and developing her muscular system, the prevention of too much mental work, especially as regards its character: sufficient open air exercise, recreation, amusements interspersed with mental labor and other duties, a healthy moral restraint and favorable social surroundings are all important points in the treatment of these menstrual disturbances, and should be insisted upon when at all practicable. Well-selected tonics and alteratives sometimes with cod-liver oil are important aids. This is a subject to which too little heed is given, and our girls are sometimes greatly neglected. The prosperity and happiness of man and the welfare of the nation demand that the profession should take an active part in the rearing of the female child, and by instructing mothers in the hygienic care of their children, the proper methods of developing their bodies, prevent the functional troubles that lay the foundation for a life-long invalidism by establishing permanent diseases of the sexual apparatus. There would then be less use for the gynæcologist with his 500 or 1000 laparotomies with the uteri or appendages on exhibition in his museum; there would be fewer weakly neurotic children with their hereditary predisposition to countless troubles peculiar to their sex, and menstruation might be what it was intended to be,—a physiological process and not a pathological condition.—*Texas Sanitarian.*

ABORTION AS AN ETIOLOGICAL FACTOR IN GYNÆCOLOGY AND ITS TREATMENT. By FRANCIS FOERSTER, M.D.

[Continued from September number.]

I believe whenever an abortion occurs that we have to deal in most cases with a pathological state of the endometrium, that our endeavor must be to remove this endometrium and the thereon implanted secundines in toto, if we wish to give our patient the best chance for recovery and avoidance of the recurrence of abortion in the nearest future.

Observers, whom we all esteem highly—Fritsch, Thomas, Schroder, Kaltenbach—speak of an endometritis post abortum, and describe this condition as being caused by the retention of portions of the decidua in utero after abortion. These small particles attain an inflammatory character and result in a degeneration of the entire endometrium, giving rise to the often met symptom, metrorrhagia post abortum. Küstner has furnished the incontrovertible proof that endometritis is often the outcome of an incomplete abortion, by demonstrating in the midst of a uterine polypus the presence of chorionic villi.

If, then, the total removal of the decidua is a necessity, can this be done by the above means, especially when we think of the close implantation of the secundines on the uterine mucosa in the second or third month? To do it thoroughly and effectively we have to use an instrument which allows us to reach the deeper structures; we need a sharp curette to obtain this result. Judiciously used we cannot produce any more injury than by the use of a dull instrument.

Whatever the genesis of the abortion may be—constitutional, accidental or criminal, we cannot aid our

case in any better way than by a thorough curettage of the endometrium. In constitutional cases the endometrium is not able to functionate properly, is the seat of disease, and should be substituted under proper medicinal treatment by a new one. In accidental cases we mostly have to deal with an endometritis; or else the causes, which are often of a trivial nature, would not be able to result in an abortion. In criminal cases it is our absolute duty to remove the endometrium, for we have good reason to assume that the instrument used for producing the abortion may not have been aseptic; a thorough curettage and the establishment of proper drainage will be the only means we have to prevent the spreading of the septic process. Bad after effects do not result from an energetic curettage; retardation of the next menstrual period or amenorrhea for one or two months may occur.—surely no disadvantage to women who are usually in an impaired state of health from the loss of blood which they suffered. If it wants proof that no harm is done to the patients, I can enumerate a number of cases where shortly after such a curettement pregnancy followed, which went on uninterruptedly to full term. Other operators have had similar experiences in this respect. Duvelius mentions sixty cases coming under this category.

I can also point to the fact that after such treatment the sluggish state of the uterus, which is so often found after abortions—I mean subinvolution—is a thing almost unknown. From a large number of cases which have come under my care I have yet to see the first one where I regret having performed a curettement; while on the contrary the expectant plan of treatment, induced by misleading or false state-

ments of the patient, has often let me feel keenly the awkwardness of my position when I obtained poor results, simply by allowing my better judgment to be influenced by presenting circumstances.

For a number of years I followed a treatment of abortion, which at first glance may be looked upon as too energetic and often unnecessary. Admitted that in its full extent the treatment may now and then be unnecessary, I can say on the other hand, as we have no means to determine whether all the products of conception have come away, nay, if not sepsis itself is on the onset, that we meet by this radical procedure all the indications. The cases of premature birth I would divide into those occurring before, and those after the fifth month of gestation. The latter category we ought to treat in a similar manner as the cases of birth at full term. The placenta being formed, the fœtus having a considerable size, we usually find no difficulty provided that we have the patience to wait for full dilatation of the cervix and that we use the necessary cleanliness. The first class of cases is the one under consideration.

Being summoned to a patient complaining of the usual symptoms of threatened abortion, uterine contraction, pains and hemorrhage, our first step must be a careful examination with antiseptic precautions. In case we find the os uteri only very moderately dilated, our whole endeavor should be concentrated to the one point, to relieve the symptoms, thus enabling the patient to continue the menaced gestation.

It is a general opinion of practitioners that when uterine hemorrhage occurs, combined with uterine contractions, we have no efficacious means to prevent the abortion. We

must confess this is generally the case, but would urge most earnestly the necessity that before we lend our hand to bring to a finish the process of gestation, we should try our utmost to give to the case a more favorable termination. It will happen, by carrying out this advice, that cases which we never thought of being able to return to the normal will respond to the means employed, and will thank you eventually for the efforts which you have made. I could relate a number of cases from my own practice, when, contrary to my expectation, I was successful in preserving the life of the fœtus, but will mention only one case, which I delivered lately at full term, after we had been annoyed and frightened every month by considerable uterine hemorrhage accompanied by distinct uterine contractions. This patient has had previously two abortions at the third month.

The supreme remedy to prevent a threatened abortion is rest, if necessary, opiates or bromides; bed rest must be enjoined for several days after the cessation of hemorrhage and uterine contractions. I am in the habit of giving, as a matter of routine, a mixture consisting of Extr. Viburn. prunif. flr. and lod. of Pot., one-half drachm of the first and three grains of the latter every three hours. Rectal enemata to keep the lower segment of the gut free from fecal masses, to prevent undue pressure upon the uterus. If these measures prove ineffectual, and the uterine contractions result in dilatation of the cervical canal, after disinfecting the vagina I apply to the cervix a packing of sterile gauze, filling the whole vagina as a preliminary step to the emptying of the uterus.

In case I find on first examination the cervical canal dilated and free

hæmorrhage, with the possibility that part or whole of the products of gestation have come away, or when they are still in utero, I proceed at once to the removal of the contents.

The situation here is a totally different one from the cases just spoken of. While the os uteri is still closed, the hæmorrhage and pains being not excessive, everything can be gained by waiting: there is no hurry for interference, sepsis is next to impossible.

When the os is patulous, presenting a ready way of access for infection from without to the uterine cavity, matters assume a different aspect: the sooner we interfere energetically the less we expose our patient to those deleterious influences. I say energetically, for I do not believe in repeated examinations, coupled with fruitless attempts to remove the contents. I believe the finger to be an object much less capable of being kept sterile than a properly constructed curette: its tactile sense, almost suppressed by the narrowness of the canal, is fully compensated by the impressions which are communicated to us in handling skillfully a delicate steel instrument.

The manner in which I proceed is the following: The patient is brought under the influence of an anæsthetic and put on a suitable bed in lithotomy position.

The genitals are scrubbed with soap and water and washed with a sublimate solution 1:1000. The same solution is used for irrigation of the vagina. If lysol is convenient, I prefer this disinfectant in two per cent. solution, first for its soapy and cleansing qualities, and then for its being non-poisonous in this concentration. By the aid of bullet forceps the cervix is brought down, or in case of parametric infiltration simply

fixed, and, if necessary, dilated by a slow acting dilator. When dilatation is sufficient, the foetus and secundines are removed and the uterine cavity is irrigated by a weak solution of lysol solution by a Bozeman-Fritsch catheter. After this is done, I proceed to scrape the interior of the uterus by means of a sharp curette. I repeat the operation until I am satisfied that all portions of the endometrium has been covered, due consideration being given to the region of the cornua. Warm water previously boiled is used for irrigation. When the irrigating fluid returns but slightly bloody, I insert into the uterus, which appears to me non-septic, sterile gauze until the whole cavity is tightly packed. In case I have the least suspicion of sepsis, I omit the packing, so as to have perfect drainage. A vaginal sterile tampon and a T bandage conclude this little operation.

The packing of the uterine cavity is done for this reason: as we are not certain that every portion of the endometrium is removed, consequently not every particle of secundines gotten rid of, the mechanical irritation of the gauze, assisted by a few doses of ergot, will bring on energetic contractions of the organ, destroying the vitality of such fragments, which may be still in utero. The gauze is removed on the second or third day, and rest in bed continued for five to six days.

The use of the sharp curette cannot be accompanied by any risk, even in the hands of the less experienced one, provided he keeps in mind that he is using a sharp instrument. The danger of perforation of the uterus is much less with a sharp curette than with a dull one, as it would require considerable more force with the latter to obtain the same result: *i.e.*,

total removal of endometrium, and consequently the risk of perforation is increased, especially when we have to deal with a soft septic organ.

I do not claim originality for this procedure, as many gynæcologists are using the same successfully, here as well as abroad. When we read in reports from the Continent, that the above results are obtained by the use of a dull curette, we must remember that the dull curette as known to us—the wire loop—is not meant by that expression, but a moderately sharp instrument.

Septic cases I have been treating by careful curettement and intra uterine irrigation of sublim. solution 1:5000; or lysol, 1 to 2 per cent., repeated every three or four hours.

Within the last few years I have changed this treatment somewhat, obtaining favorable results, which hardly could have been anticipated, considering the grave nature of some of the cases. After gentle curettage by means of the sharp curette, I irrigate the uterine cavity with the above solution and insert into it a strip of gauze, well saturated with a sterile mixture, consisting of one part of amm. sulpho-ichthyol. and two parts of glycerine. The vagina is then packed loosely with tampons, saturated with the same mixture. This way of treatment occurred to me two years ago, when I saw in consultation a case of puerperal sepsis, in which by the usual treatment no result whatsoever was obtained. Having read lately a statement concerning the application of ichthyol to the endometrium for endometritis of varying causation, I thought I would try its efficacy in this septic case. I introduced the gauze, saturated with ichthyol glyce., into the uterus, and to my surprise I found after three or four hours a falling of the tempera-

ture of four degrees. I repeated the application next day. On the third day I omitted its use, and found a rise of temperature that evening to 106. From that time on tampons were introduced daily for ten days, the case terminating in recovery. In a second case of puerperal sepsis, I used the same procedure, with the same happy result. In three cases of beginning sepsis following abortion I have tried the same measure, all cases ending in recovery.

The question comes up: How can this apparently bland application prove so effective? We know the ichthyol has only very limited antiseptic qualities: it cannot be compared to our antiseptics in general use. I am therefore inclined to attribute to it the smaller share of the work done by the two agents, glycerine and ichthyol. I may say that the well known action of ichthyol on the capillaries, in constricting them and diminishing their calibre, may come into play here, and I would like to extend this action to a certain degree to the lymphatics, which may be influenced similarly, as the blood vessels, being less prone consequently to carry infectious material. The major portion of the action shown I would attribute to the hygroscopic action of the glycerine. This agent, abstracting liquid from the superficial as well as from the deeper structures it comes in contact with, may act in a depleting way upon the lymph-channels and establish to some extent a return flow from the lymphatics, the secretion being facilitated by the previous abrasion of the diseased endometrium.

We may call all this hypothetical: it may be so, but the fact remains that the action of the ichthyol-glycerine in the two puerperal cases stated was a remarkable one, while the re-

sults of the three cases of beginning sepsis after abortion we must principally attribute to the curettage, but cannot deny that even here the ichthyol-glycerine formed a valuable adjuvant.

I am aware that it is a rather risky thing to propose, in a society of general practitioners as ours, procedures so

surgical and so far-reaching in their consequences, if they are undertaken by men not pervaded by the importance of anti and asepsis. Cherishing the hope that you all appreciate the value of anti and asepsis, I have taken the liberty to present my views on this subject to you this evening.—(*Post Graduate*, 1894.)

BOOK REVIEWS.

(All Exchanges and Books for Review should be sent to Dr. C. G. CUMSTON, 826 Beacon St., Boston.)

SPECIELLE DIAGNOSE DER INNEREN KRANKHEITEN. By DR. WILHELM VON LEUBE. Professor der Med. Klinik in Würzburg. Band I und II Leipsig, 1895. Verlag von F. C. W. Vogel. Price, 22 mks.

In these two volumes, devoted to the art of medical diagnosis, it is safe to say that the distinguished author has left nothing aside to make his work complete. When the physician is perplexed regarding the diagnosis of a given case he wants a work that will discuss at length the differential diagnosis, and this is hard to be found, at least in the average American textbook, with the exception of Da Costa.

Prof. von Leube's treatise should be placed in the foremost rank for excellency and clearness of style. Each disease is fully considered in a diagnostic point of view and with an authority and precision that is not often met with.

That this book should be most highly commended is not enough to say in its praise, and we trust that it may find its way into the hands of

those familiar with the German language

THE NERVOUS DISEASES OF CHILDREN. By B. SACHS, M. D., Prof. of Mental and Nervous Diseases in the New York Polyclinic, etc. New York, 1895. Wm. Wood & Co., publishers. Price, \$5.50.

Special treatises are now quite *a la mode* in America, and if they continue to increase in number we will soon be rivals to the French.

The present work on the nervous diseases of children is certainly well done in many respects. It surely has an end and a reason for being written.

The author has shown more favor to certain affections, while others he might have treated to a fuller extent: for example, so important a subject as tubercular meningitis is dismissed in some seven pages; the disorders of sleep, a nervous affection of childhood *par excellence*, is treated in six pages.

However, on the whole the work is good and may be recommended to the profession.

It is splendidly made up by the publishers, and the figures, of which there are a good number, are well done.

DEFORMITIES OF THE HUMAN FOOT.

By W. J. WALSHAM, M. B., C. M., F. R. C. S., and WM. KENT HUGHES, M. B., M. R. C. S., etc. New York, 1895. Wm. Wood & Co., publishers. Price, \$4.00.

This is throughout a very good work. In the beginning the anatomy of the foot is well and rationally explained and to this we would call attention.

As the title indicates the work is devoted to the deformities of the foot, and this task is well acquitted by the authors.

The book is beautifully illustrated and well printed and is to be heartily recommended to the surgeon.

THE SURGICAL DISEASES OF CHILDREN.

By D'ARCY POWER, F. R. C. S., Surgeon to St. Bartholomew's Hospital, etc. Philadelphia, 1895. P. Blakiston & Son, publishers. Price net, \$2.50.

A book on the surgical diseases of young children requires to be written by one who has had the experience like that of the author of this manual, because they require more personal observation than the general surgeon is apt to have. Mr. Power has given us a book that is practical and simply expressed, two features to be particularly commended.

His description of surgical tuber-

culosis and its various manifestation is very readable and is the best part of the work, although the other chapters are good.

On certain subjects he is far too brief, for example left palate is gone over in five pages. Other diseases could have been treated at much greater length without over-doing it.

But this manual, all things considered, is good, and will certainly find favor with the profession.

ECTOPIC PREGNANCY.

By J. CLARENCE WEBSTER, M. D., Assistant to the Professor of Midwifery in the University of Edinburgh, etc. New York, 1895. Macmillan & Co., 66 Fifth Ave., Publishers. Price, \$3.75.

It gives me pleasure to notice so valuable a book, and from the pen of a man whose authority on this subject is unquestionable.

Beginning with an excellent chapter on the etiology of this affection, we next come to one on classification, followed by two on the varieties of ectopic gestation studied in detail. The remainder of the monograph is taken up with general considerations, developmental changes, symptoms and signs, diagnosis and treatment.

Twenty-two beautiful plates render the work still more valuable.

We cannot recommend this monograph too highly to all who may be interested in this important subject, which of late years has been the pre-occupation of so many prominent men in our profession.

ANNALS

—OF—

GYNÆCOLOGY AND PÆDIATRY.

DEPARTMENT OF PÆDIATRY.

REVIEW OF PÆDIATRY.

TWO CASES OF PSEUDO-HYPERTROPHIC PARALYSIS IN BROTHERS. By ARCHIBALD CHURCH, M.D.

GENTLEMEN.—To-day I have the opportunity of presenting two typical and interesting cases of a very rare disease. This older boy, eight and a half years of age, as he walks about, presents marked incoördination in gait, with clumsiness depicted in every movement, and there is some lack of intellectual brightness in his face, which is confirmed by the fact that he does not get along well at school. Upon removing his clothing we find the most notable feature to be a disproportion in the lower extremities. While the calves are very large, firm, and apparently over-developed, the thighs, in comparison, are very much below the proper proportion. As I turn him around you will notice an antero-posterior curvature of the spine, giving a sway-back appearance. There is also an apparent and real protrusion of both scapulæ, because the infraspinatus muscles are so

much enlarged that they feel like fatty tumors, and a weakness of the serratus allows the scapulæ to stand out from the thorax. The deltoids are also somewhat puffy. The muscles below the elbow and the small muscles of the hand show no deviation from the normal proportion, nor do those of the feet.

If I now ask him to advance the foot and place it upon a chair, he is absolutely unable to do so, thereby demonstrating great weakness in the flexors of the thigh, the psoas group, and the extensors of the leg. Going up stairs is thus rendered very difficult. If I ask him to stoop, he is unable by the action of the extensors of the thigh to erect the body and to bring the pelvis to a vertical position over the heads of the femora, showing a weakness of the gluteal muscles. This inability to maintain the pelvis upon the heads of the thigh-bones results in the sway-back position to which your attention is called, and this in turn is aggravated by a weakness in the erectors of the spine, as is shown by the fact that when sitting for any length of time he

complains of pain in the back, and has a tendency to support the upper portion of the body by resting his elbows on the knees,—a position which his parents describe as characteristic of him,—and by difficulty in rising from the floor, as will be presently demonstrated. In attempting to flex the foot upon the leg, the enlarged calf-muscles appear somewhat contracted, and prevent the dorsal flexion of the foot; this is also increased by weakness of the anterior tibial muscles.

When I now attempt to excite these muscles by electricity, whether it be the enlarged sural muscles or the diminished thigh-muscles, you will notice that it requires a very much stronger current both through the faradic coil and by the galvanic method than is required in health. Indeed, such a severe current is requisite that it is practically intolerable, and only results in very feeble responses. These responses, however, appear in the order in which we find them in healthy muscles, and, consequently, they present nothing of the formula of degeneration. It is merely a quantitative change. The knee reflexes are abolished, and the skin reflexes are diminished. The tendon reflexes of the upper extremities are so greatly diminished as to leave doubt whether they are present.

In the various tests I am making regarding his sensation, I find no departure from the normal as to recognition of degrees of heat. Pain, pressure, and contact are fairly recognized, but there is a loss of muscular sense apparently, as shown in the incoördination,—though this, perhaps, is but apparant, as the varied strength of the muscles may conduce to it rather than any true sensory difficulty.

The boy in rising from the floor presents a series of movements which are well-nigh pathognomonic of the malady. Owing to the weakness of the muscles about the hips and the vastus muscles of the thighs, which extend the legs, rising without the assistance of his hands is a physical impossibility. He, therefore, first huddles himself together on the floor, and, getting on his knees and hands, pushes his body forward, gradually rising upon his feet in a position of all-fours, the weight of the shoulders and of the head being carried entirely upon the arms. The task now imposed upon the lower extremities is reduced to a minimum, and he is able to thrust up the lower portion of the body something in the manner in which a cow gets up, by the hind quarters. Moving his hands in the direction of his feet, he grasps himself above the knee with one hand, the other still resting on the floor with the arm as a supporting column, straightens out the knee-joint, and pushes the upper portion of the body into an erect attitude by a hand-over-hand process. The curvature of the spine suddenly develops, and the weight of the body is thrown entirely upon the ligamentous structures of the hip-joints and the vertebral articulations, where a minimum of muscular force is required to maintain it. You will also notice the unusual mobility in the scapular attachment to the thorax, already pointed out as due to a weakness of the serratus magnus. This is customary, and impairs the strength of all the muscles attached to the shoulder-girdle, so that while the hand-grasp and the power at the elbow are fair, movements dependent upon the strength of the shoulder-muscles are much weakened. There are no rectal or bladder symp-

toms, and the processes of nutrition and assimilation are actively performed.

The second boy, one year younger, presents, practically, the same conditions, though slightly less marked. His stature is greater than that of his elder brother by an inch and a half. The size of the calves is not so greatly exaggerated, the winging out of the scapulæ is nearly as pronounced, but the weakness in the various groups of muscles indicated in the older boy, while here clearly present, is less in degree.

Taking now into consideration the meagre family history of the patients, we find only one significant feature,—a maternal uncle became more or less helpless in his childhood at about the age of six or seven, and died completely helpless at the age of fourteen. On the father's side there is nothing to note except asthma in a sister. The parents, of foreign birth, are in perfect physical health, and both children were born by natural labors, somewhat protracted, to be sure, but not otherwise marked by any difficulty. The oldest boy at the age of six months had some febrile disturbance, and for several weeks repeated convulsions took place of a generalized character, as many as six or seven in a day. From that time weakness, marked by inability to sit up and hold the head erect, was noticed. He did not learn to walk until nearly three years of age, and has always walked awkwardly. Speech and mentality were also retarded.

The second child at the age of one year presented a somewhat similar febrile disturbance to that of the elder brother, which in like manner was followed by convulsions for a few days. His ability to walk, which at no time previously was very great, was considerably diminished at that

time. A younger, sister, two or three years of age, is a perfectly normal child.

If we were able to excise a portion of these enlarged muscles under the microscope, we should in all probability find that there was a considerable thickening of the fibrous material, an immense deposit of interstitial fat, considerable wasting of muscular elements, and certain individual muscular fibres probably much enlarged. In the shrunken muscles of the thighs, or the serratus magnus, we would find a similar hyperplasia of connective tissue, and a wasting or complete disappearance of the sarcode elements. In both the enlarged and shrunken muscles, therefore, the common character of fibrous proliferation would be present. The fat is an adventitious item, and these muscles enlarged by the fat deposit, and to a very slight degree, if at all, by actual hypertrophy of the muscle fibres, will eventually become shrunken also, and then present conditions absolutely similar to the muscles which originally waste.

By analogy with spinal progressive muscular atrophy, for a considerable period this form of hereditary disease was attributed to lesions of the cord, particularly of the gray matter of the anterior horns. Somewhat numerous autopsies, however, by competent observers, have resulted in finding this portion of the cord, and indeed all portions of the cord, absolutely intact, and it is likely that the cord changes reported in various places are resultant rather than causal of the disease, as it is a well-known fact that disease, amputation, or disuse of an extremity causes changes of a somewhat dystrophic character in the corresponding spinal gray matter. The idea, therefore, became wildly entertained that this is a disease primarily

of the muscles, apparently for the principal reason that no uniform and sufficient cord changes are found. In recent investigations of the nerve-endings in the muscles of pseudo-hypertrophic paralysis, and an allied, if not identical, disease, juvenile muscular atrophy, Von Babes finds the nerve-plates altered in two ways: first, they are rudimentary or undeveloped, and, secondly, they are actually degenerated. I cannot, however, disabuse my mind of the impression that some disturbance of the trophic control of the anterior horns of the cord over the corresponding nervous and muscular periphery may be sufficient to set up the changes which we find in the muscles. The nutrition of these muscles is physiologically and manifestly dependent upon the integrity of the anterior horn. It is not, it seems to me, unreasonable to suppose that certain changes in the anterior gray matter, of a nutritional or dynamic character not susceptible of demonstration by our present means of investigation, may be the primary cause of the disease. The fact that in a given individual certain muscles waste while other muscles hypertrophy, or at least are filled with fat and present the appearance of hypertrophy, shows that the nutritional element varies in the given individual, and this variation must be dependent upon central disturbance.

From the fact that it appears almost invariably in the periods of childhood marked by active growth, its developmental character and the indications of an inherent deficiency are manifest. Although less likely to take place in girls, when it does appear it usually occurs at puberty, another developmental period, or later during adolescence. This relation to development, coupled with the fact that the majority of these cases are

of a family type, and have a tendency to appear in successive generations, at once points emphatically to the elementary and embryological conditions in the field. We are reminded of hereditary ataxia or Friedreich's disease, another hereditary and developmental malady. Both of them appear in successive generations, both have a tendency to be transmitted by the female line, both make their appearance at developmental periods of life or after infectious diseases, and both of them present the indication of a primordially defective nervous apparatus which suffices for a time, but under the rapidly-increasing demands of active growth or exhausting disease fails to respond satisfactorily, and subsequently degenerates. In hereditary ataxia the spinal cord is defective; in pseudo-hypertrophy perhaps it is the peripheral nerve-endings, or it may be the spinal gray matter which dominates them.

The disease is propagated through the female side of the family.— first, because it is more frequent among boys, resulting in their impotence or early death: second, because it appears at a much later age in women, and does not of itself preclude fecundity: and, third, because apparently healthy mothers often have brothers and children similarly affected, themselves escaping. So pronounced is this factor in these cases that it has been traced through four of five generations by various observers, and one of the instances recorded by Meryon, in 1852, presented eight male cases in one family, none of the many sisters being afflicted.

Regarding treatment, I am compelled to say that up to this time all forms of medical management have resulted practically in failure. Nothing has served to stop the onward course and natural evolution of the

disease, and its progressive tendency to complete helplessness and death by intercurrent maladies. Gowers, who has, perhaps, made the most valuable contributions to our knowledge of the malady, and whose writings, taken with those of Duchenne, in 1861, practically cover the entire ground, and have received but trifling additions from other sources, insists strongly upon the use of exercises for the defective muscles. Disuse of the weakened muscles rapidly increases their wasting. The application of braces and jackets for the distorted spine would, therefore, be detrimental; but gentle exercises—gentle, because the muscles are already greatly weakened and must not be overtaxed—may serve to build up the individual strength of these muscle groups to their highest attainable limit, thereby prolonging activity, and, consequently, retarding the progress of the disease. Massage is also a most admirable measure if intelligently applied. The massage of the hypertrophied, tense, and sometimes over-active muscles is of less value: it should be mainly directed to those that are weakened, and where the antagonism of stronger muscles is inclined to overbalance them. Unfortunately, many of the muscles from pelvis to thigh are not within the reach of these manipulations. As a general measure for the improvement of the functions of nutrition, massage also has a certain value. Of electricity I speak with hesitation, because in these cases ordinarily such a painful current is requisite to secure any muscular activity that it is insupportable. Where, however, muscular contractions can be secured by the use of faradism or galvanism, I should consider it wise to insist upon its use.

From what has been said, it may be gathered that the prognosis is

absolutely unfavorable. Though not *per se* lethal, the incidence of any serious or acute affection is likely to be fatal. The patient becomes progressively more helpless, the atrophy progressively more accentuated. The progress is perhaps slower in girls. Sometimes, after a comparatively lengthy stationary period, the disease rapidly grows worse. Rarely an age of forty years attained; most cases die between twenty and thirty.

Fortunately, the disease is not a painful one, very little suffering aside from disability is associated with it, and, therefore, the task many times is reduced to maintaining these unfortunate mortals in as comfortable a condition as possible down the declining pathway which their disease leads them to its fatal termination. (*International Clinics, Vol. I, 5th Series.*)

IMPERFORATION OF THE RECTUM.

By GEO. BEN JOHNSTON, M. D.

AUTHORS differ as to the frequency of imperforation of the rectum. Its occurrence is variously estimated at one in from five to fifteen thousand births. That it is likely to be met with in any confinement, and upon its prompt recognition and intelligent treatment depends a life, is sufficient warrant to invite your attention to its varieties and their treatment.

The manner of development of the recto-anal canal answers for the diverse forms in which malformation occurs. The mesenteron is developed from the hypo-blast, while the meso-blast furnishes the outer coats. From the epi-blast spring the anus and sphincter portions of the rectum.

The proctodæum ascending unites with the descending mesenteron, and thus a continuous tube, the rectum, is formed. When from any cause these approaching tubes fail to prop-

erly osculate a malformation results. This imperfection may appear in one of four ways, to wit (Badenhamer's classification):

1. Complete occlusion of the anus by a membranous diaphragm, or by well-formed skin.

2. The anus is absent and the rectum ends in a blind pouch at a point more or less distant from the perineum.

3. The anus is normal in appearance, but ends in a cul-de-sac, and the rectum ends in a blind pouch at a variable distance above this point.

4. The rectum is totally absent.

It is by no means uncommon to find associated with this deformity other evidences of lack of development; notably spina bifida, a contracted pelvis and extroversion of the bladder.

In the first class of cases the anus is simply closed by skin or mucous membrane of variable density. The rectal pouch is not far removed from the perineum, and is commonly well formed.

The sphincter is ordinarily present, and the anal site is marked by a dimple or irregularity in the skin.

In the second variety the depth to which the rectal pouch descends into the pelvis is an unknown quantity. It may terminate near the skin, or it may end higher up, and the intervening space be filled with cellular tissue, or an impervious cord.

In the third form the rectum and anus may be kept apart by a bulkhead, or partition, more or less thick, or one or the other of these blind tubes may be diverted to a neighboring organ, as the vagina or bladder.

The fourth or last variety is only an exaggerated example of that form in which the rectum terminates before reaching the ascending anal portion of the gut and leaves a complete

gap between the sigmoid flexure and the perineum.

Diagnosis usually is not difficult. Many symptoms are common to all the forms described. The most pronounced or noticeable symptom, and the one to which the attendant's attention will at first be drawn, is that of obstruction. The child passes no meconium nor gases. Pain, restlessness, refusal of the breast, wakefulness, crying and violent straining, distention of the abdomen, and later, stercoraceous vomiting, point to obstruction.

When such a state of affairs appears, a closer inspection must be made. If the malformation is of the first or second variety, a simple inspection will disclose the barrier. On the other hand, if the third class exists, a thorough exploration should be prosecuted: for here, to all outward appearances, there is no deficiency, and not until the well oiled little finger or a female catheter is introduced through the anus will the occlusion be discovered. We may, with some degree of certainty, rely on physical signs to enable us to form an idea as to the extent of a given malformation. Thus, if in the first variety, the anal site is seen to bulge, and if it impart to the finger a distinct impulse when the child coughs, or when it fluctuates, we may reasonably assume that the membrane shutting the rectum is thin, and that the rectum itself is perfectly formed. The same state of affairs existing in the third form leads to a like conclusion.

When, however, there is no anus, no bulging of the perineum and no fluctuation, nothing but the scalpel will reveal the extent of the deficiency. It is of the highest importance that an early diagnosis should be made, for changes inimical to the

infant's life soon supervene. Peritonitis, septicæmia, or rupture of the colon will, one or the other of them, soon inevitably appear to end the sufferings of the little unfortunate, unless surgical relief is afforded. Nature, it must be remembered, does nothing for these cases. The treatment of such deformities is always surgical, and its success or failure depends upon the extent and variety of the malformation, and the promptness and skill with which it is applied.

In a simple case of skinning over the anus, nothing is required beyond an ample crucial incision through the membranous obstruction. A free escape of meconium follows. The opening should be kept dilated by the occasional introduction of the tip of the little finger. The "stabs" of skin left by this proceeding may be trimmed off, or left to be absorbed.

Where an anus exists and a diaphragm keeps the descending and ascending portions of the gut apart, this is divided and dilated and continuity of the tube thus established and preserved.

When no anus is present, or where the rectal end of the gut does not readily reveal itself through a well formed anus, a more careful search is to be instituted. An incision is made in the raphe extending from the root of the scrotum to the tip of the coccyx. This is to be slowly and carefully carried deeper into the pelvis, trending toward the hollow of the scrotum, until the hidden pouch is reached, or until it is no longer safe to cut farther. This procedure should be prosecuted with the greatest caution, for the meagre dimensions of the infantile pelvis will not afford much space to work in, and, moreover, recklessness might lead to disaster to some important organ. If need be, removal of

the coccyx may be resorted to, in order that the field of operation may be enlarged and the chance for ultimate success enhanced. It is never safe to carry this incision of search beyond an inch and a half in depth. Should the rectum not be reached within this limit, it is wiser to abandon this undertaking and seek another field, wherein an artificial anus may be established. Should we be so fortunate, however, as to encounter the undescended bowel, its extremity must be well freed by dissection from its moorings and drawn down and strongly stitched to the skin. This is absolutely required; for to simply open the gut and depend on a canal made by a scalpel, is but to court failure. To prevent cicatricial contraction it is positively necessary that the tract throughout should be lined by mucous membrane. When after a painstaking search with the scalpel, the gut has not been discovered, abandon the search without inflicting further mutilation on the pelvic space, and thus complicate a second, and even graver, operation.

Above all, do not stab blindly with the trocar or exploring needle in the vain hope of striking the gut. Irreparable injury may follow such an exploit. When an intelligent and ample trial to reveal the hidden gut through the perineum has failed, a colotomy must be resorted to at once. Where shall it be? Littré says in the left groin; Amussat, in the left loin behind the peritoneum, while Hugier insists on the right groin.

Each of these has its advocates. The consensus of opinion, however, of recent authors, is vastly in favor of the left groin. The selection of this point seems far more rational than either of the others, for reasons that are apparent.

It is not within the scope of this paper to discuss the methods of performing the colotomy. A colotomy for imperforation of the rectum will not differ from other methods of colotomy for other obstructions, and should be performed in the usual way.

I wish to record the two cases which serve as a text for the foregoing remarks. The first I saw ten years ago with a brother practitioner, now dead. It occurred in a male child of fair size and otherwise well developed. It was of the variety in which the anus was absent, the raphe extended unbroken throughout the entire length of the perineum. A diagnosis was made on the day of the child's birth. The usual perineal incision was made on the following day, which had been chosen as the time for operation. It was carried to a depth of an inch and a half. A reasonable effort was made in the endeavor to discover the gut above, but without success.

At this juncture, to my amazement, my friend abandoned the little fellow and handed him over to the inevitable. I urged a colotomy—he rejected my suggestion. A day or two sufficed to terminate the case in the death of the child. No post-mortem was made. No reasons were assigned which appeared sufficient to warrant this line of conduct. If my friend had been incompetent I should have ascribed his conduct to that cause. Not so, however. He was a wonderfully skilful surgeon, a superior anatomist, and a man thoroughly true to the principles of his art—all of which made his declension to offer a last recourse all the more inexplicable.

The second case fell under my observation recently. On the 28th day of August, I delivered Mrs. C.,

primipara, of a male child weighing nine pounds. The delivery had to be made by means of forceps, on account of a slight transverse narrowing of the pelvis. By reason of an indisposition, which began at her bedside, I was prevented from seeing her until the third day. I found the child in great agony—fretting and crying, never sleeping and refusing the breast. I was told its bowels had not moved. An examination disclosed the cause of the trouble. There was imperforation of the anus. The position of the anus was marked by a puckering of the skin—and by palpation, I fancied, impulse and fluctuation could be made out. This proved erroneous in the light of subsequent events. It was now so late in the day, that I was obliged to defer any interference until Tuesday morning, September 1, when in company with my friends, Drs. Daniel Coleman and Moses D. Hoge, an operation for its relief was undertaken. In the outset, I felt confident that the task of effecting an outlet would be an easy one. It proved otherwise. Under chloroform, an incision was made following the raphe, and through the site of the anus was carefully carried into the pelvis. The gut was not reached where I thought it would be, so the dissection was continued to the depth of at least an inch and a half without any signs of ultimate success. I at once abandoned the search, and immediately proceeded to do an inguinal colotomy. This occupied only a few minutes. Changes had already taken place. The temperature in the axilla was 102° Fahr., and the abdomen was much distended by gas. The abdominal cavity was opened, and immediately loops of intestines protruded. These were enormously injected and completely distended.

The descending colon was soon identified and stitched with silk sutures into the lowermost angle of the wound, and opened. At once a free escape of fetid gas took place, accompanied by a discharge of neonium. The belly subsided and the child's respiration, which had been much embarrassed, became deeper and easier. The wound was covered over with pledgets of absorbent cotton, and over these a single turn of gauze was wound. The child was laid naked on a pillow and well enveloped in soft flannels. I directed that the dressing should be changed every hour or two, on account of the free discharge of neonium, and that at each dressing the surrounding parts should be sponged with a solution of bichloride 1 to 4000. For the first two hours after the operation, the child slept profoundly, and then it awoke, nursed freely and with evident satisfaction. During the twelve hours next following the opening of the gut, the bowel thoroughly emptied itself. The operation was done at mid-day. At eight o'clock in the evening of the same day, the temperature had gone up to 102.5° —otherwise all symptoms were favorable. On the morning of the second day, the nurse reported a comfortable night for the little fellow. He had slept well—waking at intervals of two or three hours—and after nursing with enjoyment would again fall to sleep.

The temperature was now 103° , and on the evening of the same day reached 105° . There were no other symptoms in keeping with this high temperature, and hence it did not alarm me. The morning of the third day found the temperature again reduced to 102° , after another excellent night. The bowel was still discharging satisfactorily, and no untoward

symptoms threatened. Nothing worthy of note occurred until the fifth day, when in the morning it was discovered that the temperature was down to 100° , and on the morning of the seventh day it was normal. During all this time every indication was favorable: the wound did well, the child slept and nursed as comfortable as one in perfect health, and I felt that its recovery was assured. On this day the stitches were removed, adhesion being complete.

It is now seventy-two days since the colotomy was done. The child has thriven and grown as well as a child could, and appears quite as capable of living as any child, however perfect.

To be the victim of an artificial anus is unquestionably a grievous annoyance. Yet, one thus afflicted is by no means incapable of participating in the enjoyments and struggles of life.

It is our duty to rescue these little unfortunates, if only to lend them for a brief space to fond mothers. We must be true to the aims of our art, and sanction no euthanasia.

THE SURGICAL ANATOMY OF THE SPINE IN INFANCY.

CHIPAULT and Daleine (*Rev. d'Orthop.*, May, 1895), in the course of a second paper on the surgical anatomy of the infant, direct attention to the following points: The spine of the fœtus and new-born infant, taken in relation to the whole length of the body, is longer than that of the adult, on account of the slight development in early age of the lower limbs. The relative length of different regions of the spine varies at different periods of life, while the relative proportions of the dorsal sement and the cervical and lumbar

segments, taken together, vary but little during growth. The cervical segment, which at birth exceeds the lumbar segment, becomes relatively smaller with advancing age, until, in the adult, the latter is one-third longer. While in the adult the umbilicus corresponds to the level of the third lumbar spine, in the infant it is opposite to the fourth spine or even lower. The base of the sternum corresponds in the infant to the top of the seventh cervical spine, instead of, as in the adult, to the second dorsal spine. In the new-born infant the spinal cord descends but a little below the upper part of the spine of the first lumbar vertebra. While in infancy the lower limits of the cervical and lumbar portions of the cord vary but slightly from those in the adult, the lower limit of the dorsal portion corresponds to the eighth, and not, as in the adult, to the ninth dorsal spine. The cauda equina in the infant, instead of forming, as it does in the adult, a cylindrical mass which fills up the dural sheath, is arranged in two distinct processes, occupying the sides of the canal, and separated by an interval of from three to five millimetres in width, occupied by cerebro-spinal fluid. The spinal canal might thus be punctured in the third

or fourth lumbar space in the infant without risk of wounding the cauda equina. Laminectomy, it is pointed out, may be performed under much more favorable conditions on the infant than on the adult. In the former the lamina may be easily resected, the fatty tissue around the dura mater is much less vascular, and the periosteum, which can be readily detached from the bone, is capable of throwing out fresh osseous structure and of repairing the breach made during the operation in the posterior wall of the canal.

A CASE OF SPINA BIFIDA CURED BY EXCISION.

BALDWIN reports a successful case of excision of a spina bifida, in the *British Medical Journal*, No. 1804, 1895. The child was two months of age and the tumor nearly as large as a cocoanut. As tapping had failed to relieve the condition, the operation was undertaken. Both the sac-wal and the skin were tied with silk worm-gut sutures. Excepting some fever on the second day and paralysis of the bladder extending over three days, the child made an excellent recovery.

ITEM.

At a recent meeting of the Trustees of Jefferson Medical College, Philadelphia, the honorary degree of LL.D. was conferred on Dr. John Collins Warren, Professor of Surgery in Harvard University.

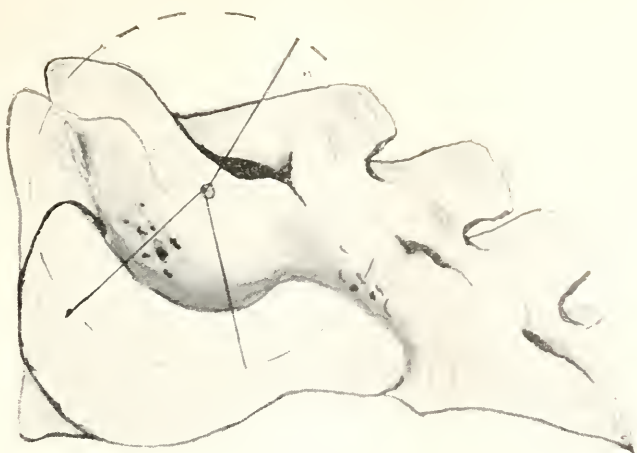


FIG. 1.

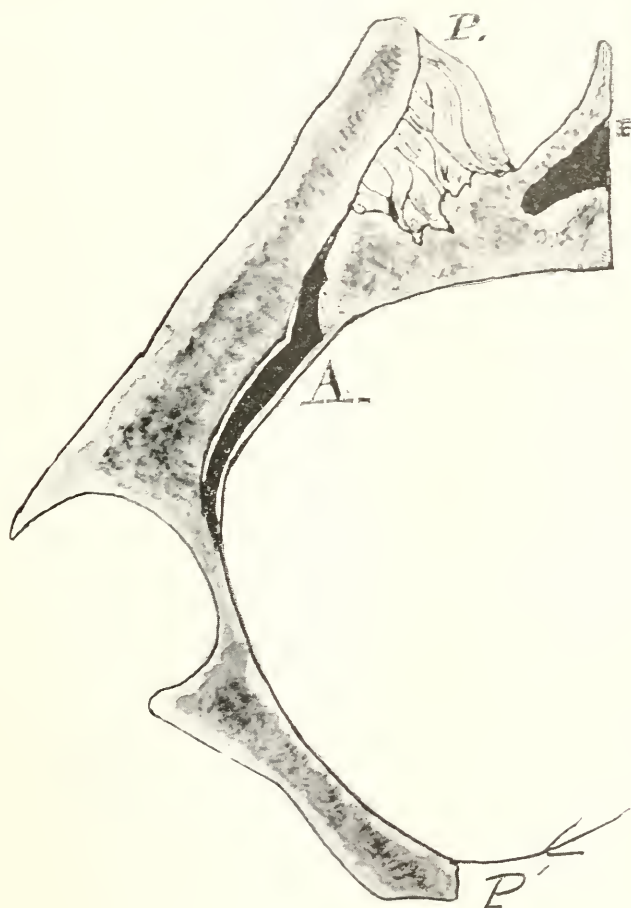


FIG. 1 1-2.



FIG. 2.

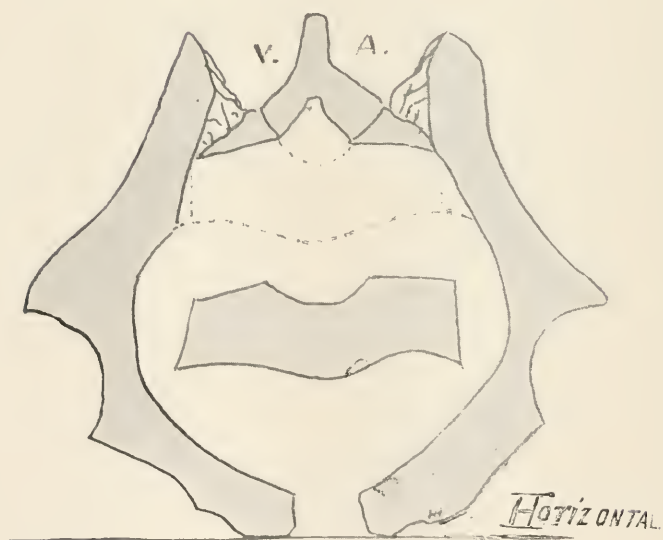


FIG. 3.

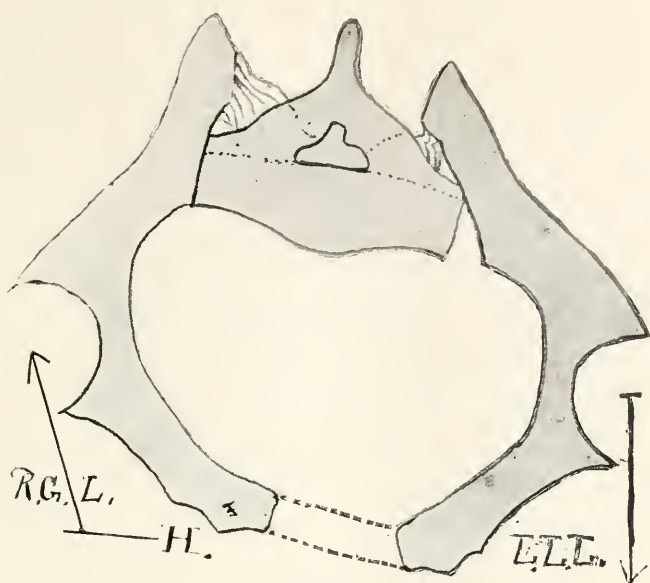


FIG. 4.

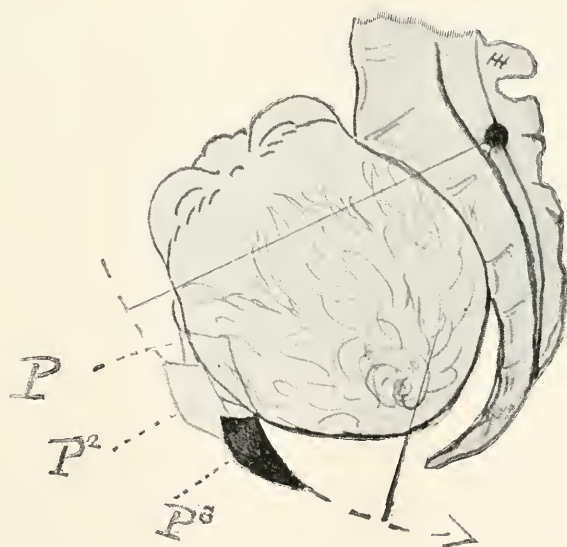


FIG. 5.



FIG. 6.

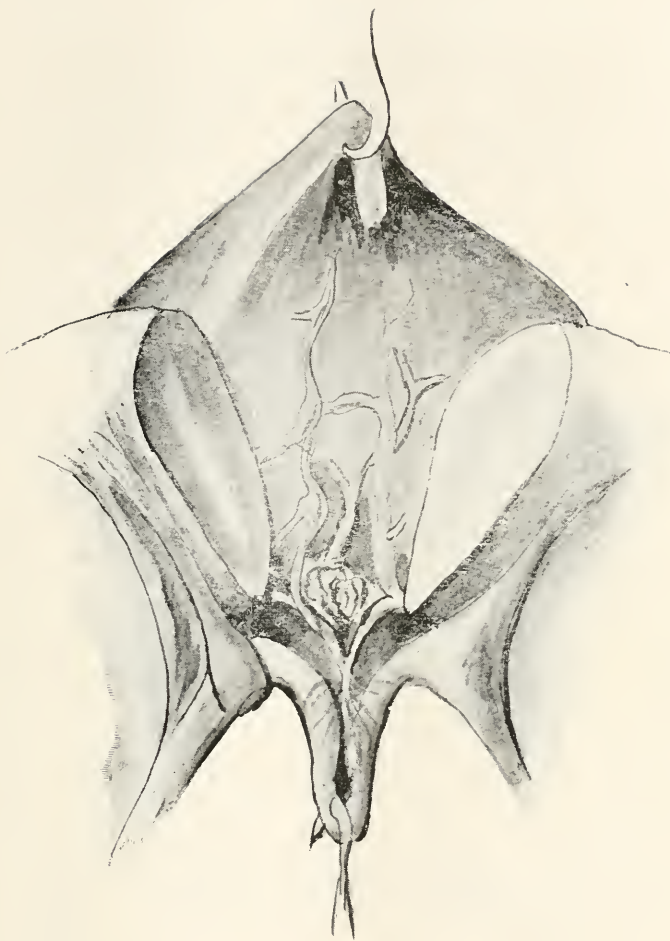


FIG. 7.

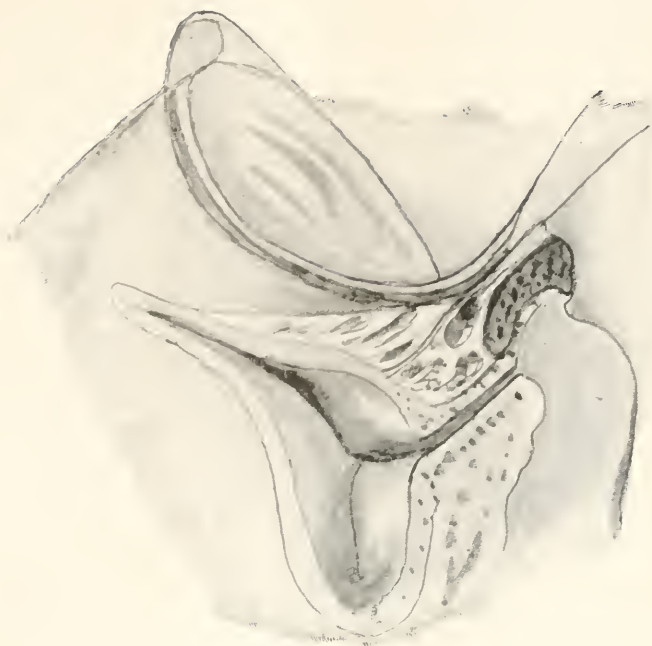


FIG. 8.



FIG. 9.

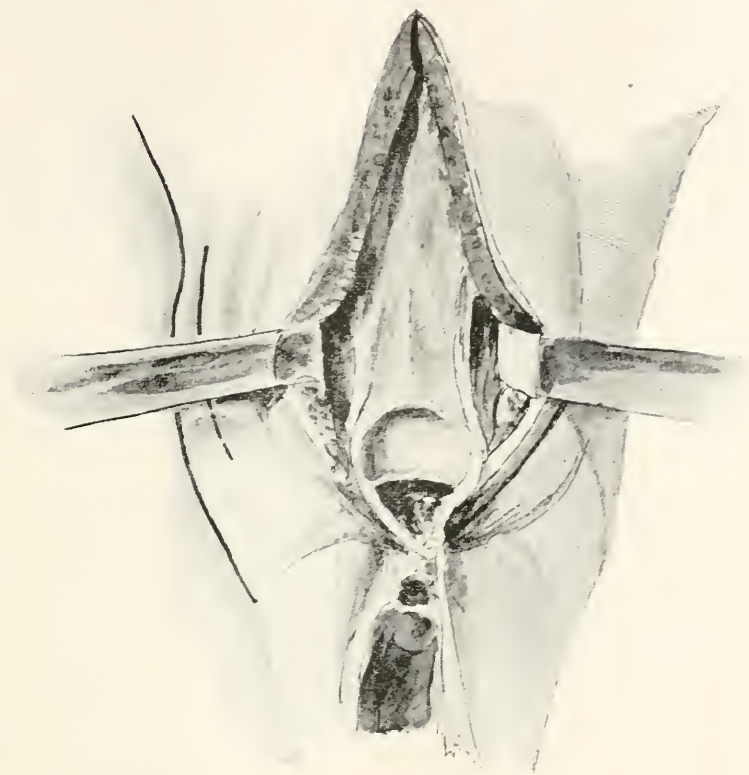


FIG. 10.



FIG. 11.

ANNALS

—OF—

GYNÆCOLOGY AND PÆDIATRY.

VOL. IX.

NOVEMBER, 1895.

No. 2

ORIGINAL COMMUNICATIONS.

The Value of Symphyseotomy*.

HUGH HAMILTON, M. L. C., M. D.

HARRISBURG, PENN.

OPERATIVE obstetrics is an essential part of a physician's education. The process of natural birth is merely an incident, but a birth may become eventful and ultimately tragic. Cases demand action in the order of their occurrence, namely: Detention from want of maternal power due to foetal malposition, arising from deformed foetus, by deformed maternal parts. Nature makes an effort to sacrifice upon these occasions the child for the mother, because her preservation is the conservation of the species—following this guide, accoucheurs strive to do this more, therefore the highest aim of the art of midwifery is to save both, through the application of therapeutical remedies and other means. More Madden (1)

questions if we have an emenagogue in the special sense in which we use it. Recently I had a letter from a Philadelphia physician (2) stating that brown sugar was an excellent uterine tonic. Upon this question at present it is not necessary to enter. When medical aid fails recourse must be had to manual or instrumental skill or surgical relief.

Bearing in mind the simple classification, a birth is detained through lack of maternal power. The reflexes having been used to stimulate these powers and failed, turning may be resorted to, or the forceps, or both consecutively. Forceps do not always fit and will often slip: to overcome the difficulty, contrivances have been made to secure the necessary force in the proper axes of expulsive power.

* Read before the Section on Obstetrics, of the American Medical Association at Baltimore, Md., in 1895.

Secondly, malposition of the fœtus may be regarded as all but the four vertex ones, *i. e.* Dexter et Sinister; Anterior et Posterior. For although breech presentation gives less risk than others, still, for all that, the after-coming head is not always a problem of easy solution. Presentations may be modified by manual dexterity and expediency, and even then they do not result in living infants.

Thirdly, should the deformity of the fœtus prevent birth, then instrumental delivery asserts itself. If possible only upon the lifeless infant, but not reprehensible upon the living one under certain restricted conditions.

Fourthly, when dystocia comes from deformed maternal parts, then modern surgical technique renders pronounced aid. These are divided by the anterior-posterior diameter of the pelvis: the means of accurate measurement becomes of great moment. One of the most recent and complete pelvimeters is that of my friend, Dr. Philander A. Harris, of Paterson, N. J.

Class A. Pelves of a conjugate vera of less than 7 centimeters. Class B. Pelves of a conjugate vera of more than 7 centimeters, modified by symmetrical contraction. In class A, section is the only method advisable. In class B, Symphyseotomy, etc., are the proper operations.

Recent statistics covering the years 1891, before symphyseotomy and during the subsequent years after its adoption, at the clinic Baude-

locque in Paris, in 1892, there were 13; 1893, 14; 1894, 22. Symphyseotomies total, 49. The maternal mortality was four from those undergoing the operation. The infantile mortality attributable to those whose mothers underwent the operation was five. To go more into details, there is reported by Pinard at the Baudelocque in 1891 with a total of 1654 cases treated, of which number there were 140 deformed pelves, being 8.456 per cent.; of this number natural delivery took place in 1891 or 4.89 per cent. in 1654, or 57.85 per cent. in 140, the whole number of those with deformed pelves. The remaining 59 were delivered by artificial means (including premature artificial births, high and low forceps operation, version, basiotripsy and conservative Cæsarian operation), or 3.55 per cent. in 1654; or 42.15 per cent in 140. The maternal mortality was 4, or 0.241 per cent. in 1654, or 2.85 per cent. in 140, or 6.77 per cent. in 59, the whole number operated. The infant mortality was 31, or 1.87 per cent. in 1654, or 22.14 per cent. in 140, or 52.52 per cent. in 59.

At the Royal Dresden Clinic during the period from January 1, 1892, to July 1, 1893, eighteen months, there were 2512 cases of confinement. Of this number 610, or 24 per cent., had deformity of the pelvis, (3) however there were 146 of these whose deformity was so slight as not to demand any anxiety whatever, so that the number is reduced to 464, or 19.40 per cent. in 2512. Four

hundred and twenty-four of this number were fortunate in having unassisted births, or 16.87 per cent. in 2,512, or 88.98 per cent. in 465, the revised number of deformed pelves. Those requiring assistance (in procedures as follows: Forceps, version, Basiotripsy, premature births, Cæsarian Sections, Symphyseotomy,) were 89, or 3.54 per cent. in 2,512, or 11.01 per cent. in 464. Those who were subjected to operations other than Symphyseotomy, were 83, or 93.85 per cent. in 89 of those totally operated, or 3.30 per cent. in 2,512, or 9.72 per cent. in 464. Consequently there were six Symphyseotomies performed, giving rise to the following comparative proportions: 0.23 per cent. in 2,512, or 1.29 per cent. in 464, or 6.7 per cent. in 89. In the published account there were a mortality of mothers due to operative interference of 4, being 0.159 per cent. in 2,512, or 0.864 per cent. in 464, or 4.49 per cent. in 89. It is but fair to state that out of this number there were five deaths in 194 primiparous which were expected to give birth naturally, although their pelves were deformed. They really do not belong to operative statistics, yet they should have been operated by Symphyseotomy and the lives saved. This would heighten the percentage more than double. It is difficult to make tabular statements represent at a glance all we wish. Although the Paris figures include *all* deaths, and the comparison is more favorable than it seems to the Clinique Baudelocque,

the infantile mortality was 43, of which there is 1.70 per cent. in 2,512 cases; 9.48 per cent. in 464 deformed pelves; and 48.30 per cent. in all operations, 89. The same parenthesis can be made in this respect as upon the mothers' mortality, in there being an additional loss of infants of nine, making in all when added to 43, 52. This would increase the percentage to beyond 10 upon 464. The maternal mortality in operations other than Symphyseotomy was three, which gives 0.119 per cent. in 2,512, or 0.646 per cent. in 464, or 3.37 per cent. in 89 operated cases, or 3.53 per cent. in 83 operations *not* Symphyseotomy. The mothers' deaths in Symphyseotomy were only 1, or 0.037 per cent. in 2,512; or 0.21 per cent. in 464; or 1.23 per cent. in 89; or 16.66 per cent. in the operation (Symphyseotomy, six) itself. No deaths of infants were due to Symphyseotomy.

The Clinique Baudelocque in 1894 is the most recent report, and presents the following: The whole number of confinements was 2,147, of this number 94 were deformed in the pelvis; the measures were taken by the pelvimeter, being 4.37 per cent. in 2,147; even of this number 64 gave unassisted birth, being 2.98 per cent. of 2,147, all cases; or 67.97 per cent. in 94, the number of deformed pelves; allowing 30 to be artificially assisted [these consisted in Basiotripsias (6), Porro operations (1), Symphyseotomies (22), Vectis (1),] being 1.39 per cent. in 2,147, or

32.03 per cent. of all cases operated. Those cases to which Symphyseotomy were not used being 8, or 0.37 per cent. in 2,147, 8.51 per cent. in 94, all deformed pelves; or 26.66 per cent. in 30, all the cases operated. There were performed 22 Symphyseotomies, being 1.22 per cent. of all cases in 2,147, or 23.41 per cent. of all deformed cases, 94; or 73.33 per cent. of all operations, 30. The total operative maternal mortality was three, which in 2,147 is 0.139 per cent.; 3.20 per cent. in 94; or 9.99 per cent. in 30. The total infant mortality was eight, being 0.37 per cent. of 2,147; 8.51 per cent. of 94, or 26.66 per cent. in 30. The maternal mortality with operations other than Symphyseotomy was two, being 0.925 per cent. of all cases, 2,147; or 2.13 per cent. of deformed pelves 94; or 6.66 per cent. of 30, the operated cases, or 25 per cent. of the operations other than Symphyseotomy, 8. The maternal mortality under Symphyseotomy was 1, being 0.046 per cent. in 2,147; or 1.07 per cent. on 94; or 3.33 per cent. on 30; or 4.55 per cent. on 22, the operation (Symphyseotomy itself.)

The infant mortality was nil.

The results are that Symphyseotomy relieves the peritoneum from being disturbed; does not divide the uterus; becomes as easy of reparation as any section or re-section of the long bones; permits the passage of a head, frequently without forceps;

beside making a perineal rupture less probable; the time required for union of the symphyses allows the uterus time to become completely involuted. Its disadvantages are non-union at the symphyses, which affects locomotion; at any rate it offers much in attracting attention to accurate pelvimetry that will exercise caution in prognosis and facilitate the progress toward scientific obstetrics.

1st. Creating no necessity for premature artificial confinement.

2d. Giving up all application of forceps and of all operations implicating the force of the head against the bony resistance of the pelvis (when it is developed or remains in the superior strait, in the excavation or in the inferior strait).

3d. The absolute abrogation of embryotomy upon the living baby.

4th. The enlargement of the size of the pelvis (by symphyseotomy, pubiotomy, ischio-pubiotomy, coccyotomy), in all the cases where the osseous resistance is not overcome by the uterine contractions, the position of the head being well determined, together with its size; where the calculation demonstrates that when section of the pelvis is made its enlargement will not be under seven centimeters, allowing the passage of a head of the fœtus at term.

5th. Where absolute contraction of the pelvis is present, under seven centimeters, the section serves for the Porro-operation.

SYMPHYSEOTOMY IN YEARS 1891, '92, '93 AND '94.

	Division of cases upon which percentage is based.	Total Confinements.	Deformed Pelves.	Natural Delivery in Deformed Pelves.	Artificial Delivery in Deformed Pelves.	Operations other than Symphyseotomy.
PARIS, 1891. Clinie Baudeloque.....		1654	140	81	59	59
All Cases	1654	8.456	4.89	3.55	3.55	
Deformed Pelves....	140	57.85	42.15	42.15		
Operated Cases.....	59					
Symphysiotomies....	None.					
DRESDEN. (Jan. 1, 1892, to July 1, 1893) Royal maternity...		2512	(610)	(186)	89	83
All Cases	2512	(24.1)	16.87	3.54	3.31	
Deformed Pelves....	464	19.41	88.98	11.01	9.72	
Operated Cases.....	89				93.85	
Op. other than "S."...	83					
Symphysiotomy	6					
PARIS, 1894. Clinie Baudeloque.....		2147	94	64	30	8
All Cases	2147	4.37	2.98	1.39	0.37	
Deformed Pelves....	94	67.97	32.03	8.51		
Operated Cases.....	30				26.66	
Op. other than "S."...	8					
Symphysiotomy	22					

SYMPHYSEOTOMY IN YEARS 1891, '92, '93 AND '94.

	Symphyseotomy.		Total Operative Mortality.	Maternal Mortality.		Infant Mortality was only in Other Operations.
	Mothers.	Infants.		Other Operations.	Symphysiotomy.	
PARIS, 1891. Clinie Baudeloque.....						31
All Cases	0.241	1.87	0.241			1.87
Deformed Pelves....	2.85	22.14	2.85			22.14
Operated Cases.....	6.77	52.52	6.77			52.52
Symphysiotomies....						
DRESDEN. (Jan. 1, 1892, to July 1, 1893.) Royal Maternity.	6	4	43	3	1	43
All Cases	0.23	0.159	1.71	0.119	0.037	1.71
Deformed Pelves....	1.29	0.864	9.48	0.646	0.21	9.48
Operated Cases.....	6.7	4.49	48.31	3.37	1.23	48.31
Op. other than "S."...			3.53			
Symphysiotomy....					16.66	
PARIS, 1894. Clinie Baudeloque.....	22	3	8	2	1	8
All Cases	1.02	0.139	0.37	0.0925	0.0462	0.37
Deformed Pelves....	23.41	3.20	8.51	2.13	1.07	8.51
Operated Cases.....	73.33	9.99	26.66	6.66	3.33	26.66
Op. other than "S."...			25.00			
Symphysiotomy....					4.55	

EXPLANATION OF PLATES OF DR. HAMILTON'S ARTICLE.

FIGURE 1. The left aspect of the sacral bone. The dot shows the point of rotation and the ear-shaped articular surface.

FIG. 1 1-2. The disposition of the anterior and posterior ligaments controlling the illeo-sacral joint. A and P respectively, P pubes.

FIG. 2. The extent of motion of the ilæ upon the sacrum, shown by letters A, B, and C, consecutively.

FIG. 3. The parts involved in making the illeo-sacral joint, V. A. The Vertebral Arch being only the part, and

FIG. 4. The forces which act in making a pelvis asymmetrical. L. L. L., lame left leg. R. G. L., right good leg. Observe their relation to the horizontal, H.

FIG. 5. The effects of Symphyseotomy upon the passage of the head. The superior strait is destroyed.

FIG. 6. Posterior view of the Sym-

physis pubes; the *dark* lines show the arterial veination, the *light* lines, the Venous Circulation. The line of incision is singularly free from vessels, if kept rigidly in the centre.

FIG. 7. The *anterior* view of the Symphysis pubes separated; the clitoris pulled away by hook, and also the bladder; the arterial and venous ramifications are removed from injury by pressing the bladder backward.

FIG. 8. Exhibits this condition in profile, with symphyseotomy knife in position.

FIG. 9. My symphyseotomy knife, with split or grooved olive point and broad back, capable of pushing the bladder away, and a broad handle with hook to steady it exactly in the median line.

FIG. 10. The external openings necessary to execute symphyseotomy.

FIG. 11. The external openings completed and the knife *in situ*.

Some Original Studies on the Obstetrical Forceps, with Mechanical Demonstration.*

J. J. E. MAHER, M. D.

MR. PRESIDENT AND GENTLEMEN: The obstetrical forceps is essentially a conservative agent, and by saving two lives at once becomes the most useful instrument in surgery. It therefore well deserves the immense amount of ingenuity that has been expended in attempts to eliminate the defects discovered in the common or ordinary forceps. I shall proceed in the simplest possible manner I know how, and leave all obtruse calculations and "Reine Mechanik," to be read rather than listened to.

For a workman to understand the character of the tool he requires it is absolutely necessary for him to be able to appreciate the character of the work to be done. He must learn the conditions and the exigencies of them before he can calculate the amount of force to be expended and the manner of its application to accomplish the work in hand. By work I mean the application of force to overcome resistance. To understand this resistance to the descent of the child's head we must be ready to appreciate certain conditions which obtain in the head of the child and the obstetrical canal.

In considering the obstetrical canal

we will take two points, the axis of the canal and the character of the resistance offered by the walls.

Hodge says, "The axis of the canal has been variously delineated by authors, but by no one with sufficient accuracy."

The circle of Carus, A. (Fig. 1) consisted of a 2 1-4 inches radius, having its centre at the middle of the posterior surface of the symphysis pubis, and extended not more than one inch and three-eighths directly below the sub-pubic ligament in the direction, b g.

Hodge took the middle of the sub-pubic ligament as the centre of a circle, B, with a radius extending to the axis of the superior strait. This circle might get rid of the difficulty at the outlet, but at the superior strait it was very faulty. Hodge did not believe a single circle could be described satisfactorily; for he, like Naegele, Velpeau, Pierre, Dubois and Caseaux, believed, what is apparently true, that the head descended practically in a straight line in the axis of the superior strait.

The circle of the planes C is also faulty in approaching too closely to the pubis.

Dr. W. S. Gardiner of this city (Baltimore) deviated from the ordinary manner of describing a circle on

* Read in the Section on Obstetrics and Diseases of Women at the forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

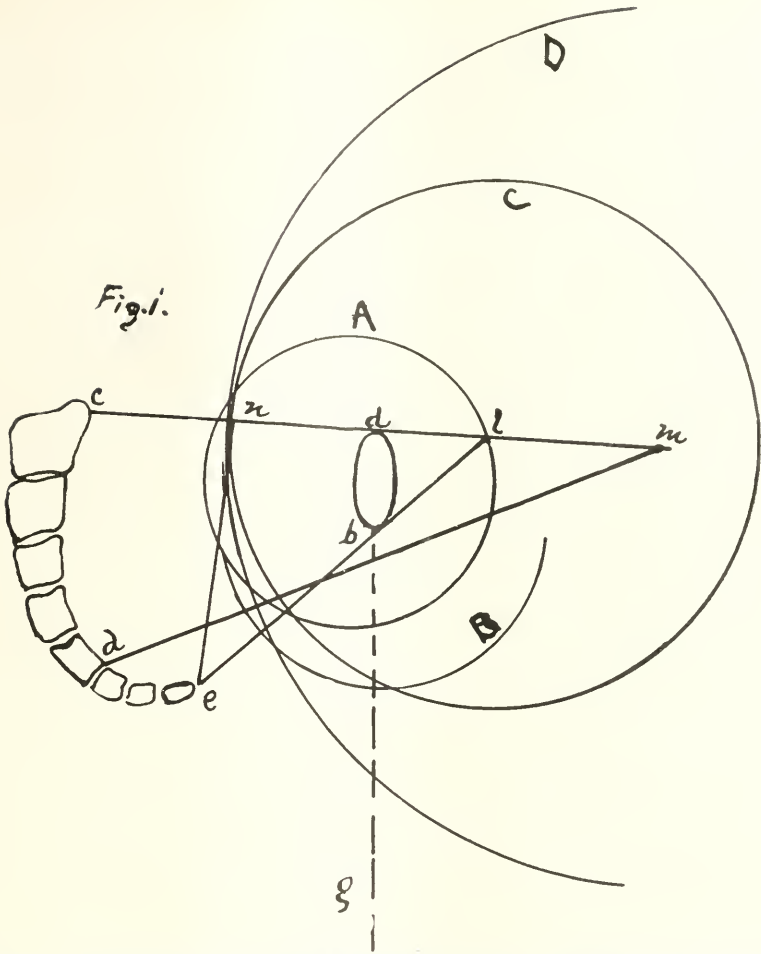


Fig. 1. A, b, c, d, e, represent an antero-posterior section of pelvis; c, a, the plane of the superior and e, b, that of so-called inferior straits; c, l, e, l, the intersecting planes of these straits; d, m, the produced plane of inferior strait after Gardner; b, g, vertical line measuring the various axes offered at outlet; N, e, the axis of superior strait; A, circle of Carus; B, circle of Hodge; C, the generally accepted axis or the circle of the planes; D, Gardiner's circle of the planes.

the intersection of the planes of the superior and inferior straits produced beyond the pubis. He very properly showed that the tip of the coccyx did not make any part of the inferior strait. For him, and correctly too, the end of the sacrum and a point one-half inch below the sub-pubic ligament constitute the proper extremities of the inferior strait. While I would admit this as perfectly

correct, I cannot accept a circle D with a radius of 7 inches, and which is 4 1-8 inches below the sub-pubic ligament, as representing the axis of the outlet.

It is easy enough to obtain a single circle, a segment of which shall delineate the axis of the obstetrical canal in a very practical way, if we go about it right. The anterior and posterior walls must be observed

The posterior wall differs materially from the anterior. Instead of two inches, it is more like ten or twelve inches long. The intra-pelvic portion of it, about four inches long, limited by the planes of the superior and inferior bony straits, offers, like the anterior wall, an unyielding resistance: this with the tip of the coccyx pushed back to its extreme limit is all that need concern us in the study of the posterior wall, because this wall in the extra-pelvic canal is so yielding that it offers no *point d'appui* on which to calculate.

Now, if we take the promontory of the sacrum, the end of the sacrum, and tip of the extended coccyx, as the three points necessary to find the circle of which the posterior walls form a segment, we shall have a circle passing through each of these points, *c. d. f.* This circle might be objected to on account of the eccentricity formed by the hollow of the sacrum that is not involved. The hollow of the sacrum conduces to the amplitude of the pelvis, is an advantage, and is therefore not to be taken into account when considering the disadvantages or the narrowness of the unyielding straits in a forceps operation. But when we come to consider this circle in its distance below the sub-pubic ligament, we find it unsatisfactory. This fact led me to concentrate the circles, which might readily be done by slightly increasing the sacral eccentricity, which really does not exceed 1-4 of an inch at the lower end of the sacrum, and in the upper half means

nothing. This deviation from the purely scientific procedure gives a more satisfactory result. We then have the circle *c. d. h.*, representing the posterior wall. To find the circle of which a segment shall represent the axis between the two walls just described, we have only to take half the sum of the radii of the circles of the anterior and posterior walls, as the radius of the third circle *i. k.*, which shall be the most equidistant between both walls of the pelvis, of all the axis I have ever studied.

Having determined the most practical axis of any obstetrical canal, we should now consider the fact that at the inlet the resistances offered by the pubis and sacrum are uniform and equal: neither will yield, they are absolutely unyielding. Now, if these resistances are equal they combine so as to be represented by a resultant or single resistance, whose direction is that of the axis of the superior strait.

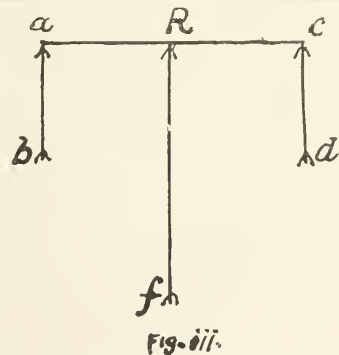


Fig. III. *a, c.* body to which the forces *b, a, d, c.* are applied, and which is equally as well applied by the central balancing or resulting forces *f, R.*

It is well-known that if the two equal and vertical forces, *b, a, d, c.*

(Fig. iii) are opposed to the two extremities of the body *a, c*, they can be replaced by a single vertical force *f, r*, equal to their sum, and passing through the centre *R*, of the body *a, c*.

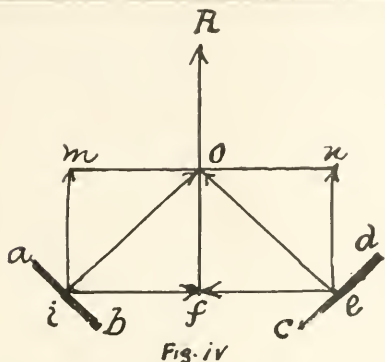


Fig. IV. *a, b, c, d*, the antero posterior walls of pelvic inlet; *i, o, e, o*, the resistances or forces presented by, and at right angles to, these walls to the body; *m, n, e, m, e, n* and *i, f, e, f*, the resistances into which *i, o, e, o*, are decomposed; *f, R*, the resultant resistance replacing *i, m, e, n*.

The resistance *i o, e, o*, (Fig. iv), opposed by the walls *a, b, c, d* of the pelvis are, in reality, obliquely directed upward and inward; but these oblique resistances decompose into the inward or horizontal *i, f, e, f*, and into the upward or vertical *i, m, e, n*.

These two latter, as we have already seen, have a common resultant, *f, r*, equal to their sum and vertical like them, passing through the centre *o*, or the body *m, n*. The horizontal or inward resistance *i, f, e, f*, tend to effect the reduction of the cranium, while the vertical or upward resistances *i, m, e, n*, represented by *f, r*, oppose its descent.

If two oblique forces could be opposed directly to the two oblique resistances offered, say by the pubis and the promontory of the sacrum,

i, o, e, o, what would be the effect? The directions of the forces would be opposite to those of the resistances, that is, downward and outward: the downward force being directly opposed to the axial resistance *f, r*, would be entirely useful in overcoming it, but while the inward resistances *i, f, e, f*, are useful in producing reduction of the cranium, the outward forces *f, i, f, e*, opposed to them, must produce the contrary effect, expand the cranium, and hence increase the resistance.

The oblique forces therefore would expand the cranium, increase the resistance, and thus tend to damage the soft parts of the mother. Supposing the oblique force hypothetically opposed to the oblique resistance *i, o*, were omitted, and the force opposed to the oblique direction *o, e*, then there would be left the inward resistance *i, f*, and the outward force *f, e*, acting conjointly in the same direction, *ie* toward the pubis, thus increasing the resistance at that point and producing pressure injurious to the mother in direct proportion to the force applied. Hence the application of a force in the oblique direction downward and forward at the superior strait tends to drive the head against the pubis, make the head rotate about this point, increase the antero-posterior diameter of the presenting part, thus increase the resistance to be overcome, and cause unnecessary pressure to the soft parts of the pubic structure of the mother, and a positive loss of a certain percentage of force applied.

This is precisely the effect of the

ordinary forceps applied at the superior strait in a difficult case. Any forceps, ordinary or not, in the use of which force is expressed in an oblique direction shows the same effect more or less. Hence it can be readily observed without further detail, that to overcome the resistance met with at the superior strait, with the least damage to the tissues of the mother, the force should be directly opposed to the resultant resistance, and consequently traction must be made directly in the axis of the superior strait.*

If the obstetrical canal were a straight one this would be a very simple thing to accomplish, but since it is curved forward in such a manner as to have the axis of the inferior strait produce, with that of the superior strait, an angle of about 130° (Hubert), or better 155° , it becomes necessary to have an instrument whose curve will approximate as conveniently as possible to that of the canal. As direct force can only be expressed in straight lines, the application of direct force to such a curved instrument as the forceps, as Simpson's, of which the axes of the blades and shanks form an angle of about 160° when adjusted at the brim, not only produces a certain amount of injury to the mother, but increases the amount of resistance to be overcome: because the direction of the force thus expressed would be along an oblique line from the middle of the blades *f*, (Fig. v.) to the

point of the instrument grasped by the operator, say near the lock *p*.

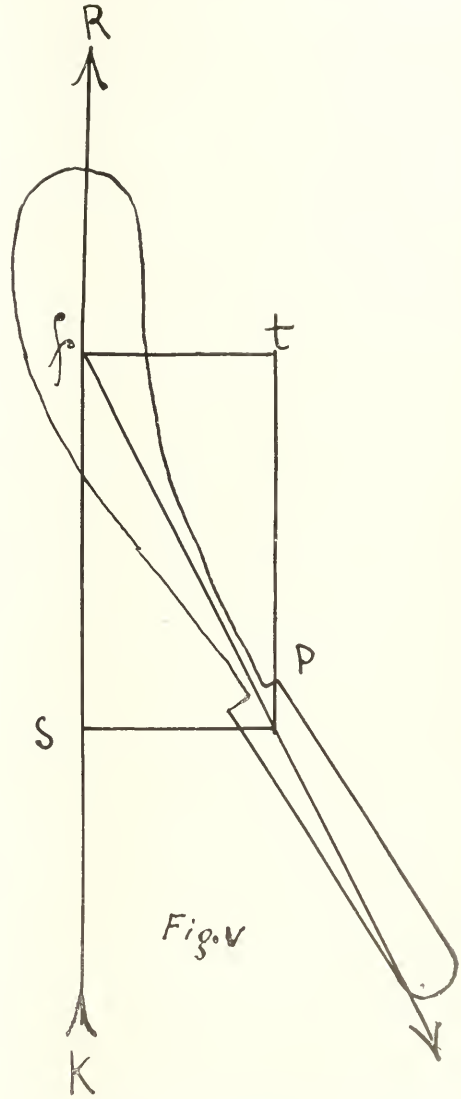


Fig. V. represents the blade, shank and handle of an ordinary forceps; K, R, the axis of the superior strait or the direction of the resistance; *f*, *p*, the direction of the force applied to the center of the head; *f*, from the handle near the lock; *p*, *t*, *f*, *s*, the two directions in which the oblique force *f*, *p*, is actually expressed.

This direction of the force is by no means directly opposed to that of the resistance *k*, *r*. met with in the

* For further details see article in Medical Record, June 10, 1893.

axis of the superior strait as necessary to overcome it, but is oblique, downward and forward. It is thus a composite force, that can be decomposed into a vertical or downward f, s , and a horizontal or forward force f, t . The downward force being directly opposed to the resistance will be entirely useful in overcoming it, but the forward force, by crowding the head against and even about the pubis, can only increase the resistance and injure the soft parts of the mother by compression. This compressive effect of the ordinary forceps bears a direct ratio to the size of the angle s, f, p , produced by the oblique direction of the force and that of the axis of the superior strait. The larger this angle the greater the compressive effect. With Simpson's forceps this angle is about 30° and consequently over 55 per cent. of the force applied is exerted against the pubis.

I might here state that in the paper already referred to I termed the above angle the *angle of compression*, and the angle p, f, t , formed by the forward direction and the oblique direction the *angle of extraction*. But to render the subject easier of comprehension I made the axis of the blades* co-incide with the axis of the superior strait, thus rendering the angle of compression only about 15° , which can rarely happen in practice with a perfect perineum, and consequently the angle of compression is, in reality, twice as great as that given in the paper mentioned.

*[or rather the longest chord drawn on that axis.]

To eliminate the compressive effect in the ordinary forceps, much ingenuity has been spent in devising methods of using it. But these methods, such as that of Oseander and others, are effective to an uncertain extent, and the success achieved is of an uncertain quantity; for such methods require, for any degree of success, a hand educated to their use; a hand that has become adroit and skillful by prolonged experience in the manipulation of three forces acting in three different directions at the same time. No wonder then that such methods have not become popular, while other means have offered a more certain result.

This condition of affairs led to the development of forceps in which these three directions of the force were reduced to two. These forceps, among which are Hubert's and other similar models, I would term "method forceps," inasmuch as a method of manipulating these two forces is inseparably connected with their use. Then another class developed, in which ingenuity has endeavored to reduce the three directions of the force into one, and that one direction that of the axis of the superior strait, hence the name, Axis Traction Forceps. Of this class I have not found in the market a single positive representative. If we take the rule laid down by Milne Murray, of Edinburgh, as governing the construction of the correct axis-tractor, and published by him in the Edinburgh Journal, and republished by Dr. Keiller in the American Journal of Obstet-

ries, and examine it carefully, we shall find that no instrument made according to that rule is an axis-tractor.

Milne Murray draws a chord on the axis of the blade, and then draws

a tangent line, passing through the central point of this axis, and parallel to the chord. He insists that if the instrument is correctly made the stud of the tractor handle lies along the tangent line.

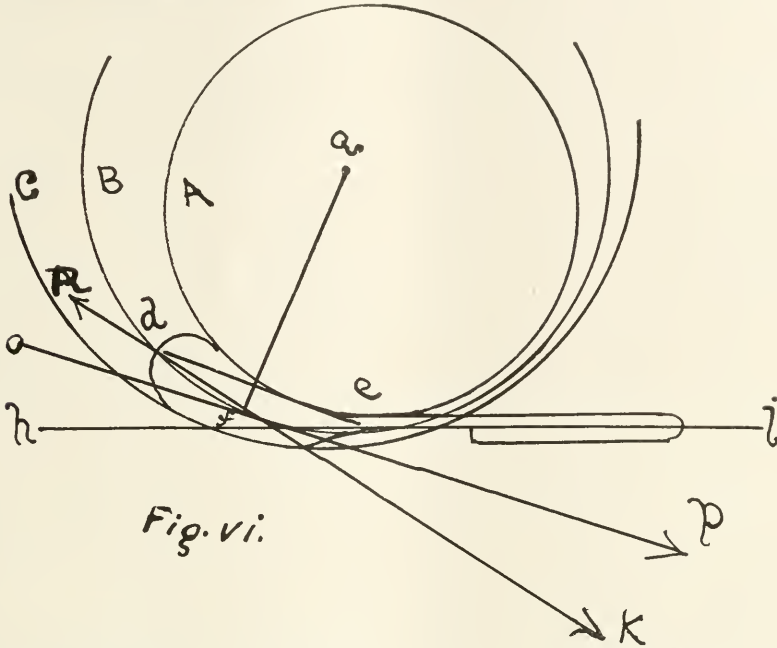


Fig. VI. The central figure d, f, e, i, represents an ordinary forceps blade, shank, and handle; A, the circle of which a segment represents the smaller or anterior curve of the blade; C, the circle of which a segment represents the posterior curve; B, the circle of which a segment represents the axis of the blade; N, i, the axis of handle and shank; d, e, the cord of the arc forming the axis of the blade; f, is the centre of the axis; O, p, is a tangent to this arc drawn on the central point f, and parallel to the chord d, e; n, R, represents the axis of the superior strait and the direction of the resistance.

If we take a Simpson forceps, and determine the axis of the blade by means of eccentric circles, made as before, we can readily prove this. The anterior or smaller curve of the blade is the segment of a circle, A (Fig. vi.), whose radius is 5 1-4 inches, and the posterior curve is the segment of another, C, with a radius of 8 1-4 inches. Having the two circles, A, C, which do not intersect, it becomes an easy matter to find the third circle, B, whose radius is 6 3-4

inches, a segment of which represents exactly the axis of the blade d, f, e. Murray and Keiller, by the way, determine their axis on the assumption of guess points, chosen where the curve of the blade is supposed to begin and end. If we draw the axis of the handles and shanks h, i, its point of junction with the axis of the blade e, makes the beginning of the latter, and if we unite this point with that at the intersection of the axis and the tip of the blade d, we shall

have the longest possible chord drawn on the axis, which is 5 3-4 inches. If a tangent be drawn on the central point of this arc or axis, and parallel to the chord just described, we shall have the line along which Milne Murray tells us we must make traction. Now, if you will recall the fact that the axis of the superior strait is three inches behind the posterior commissure of the vulva, we can readily observe that since this tangent is not more than 1 1-2 inches behind the shanks, it is impossible to make axis-traction after Milne Murray's notion. On the other hand, the real axis of the superior strait is represented on the instrument by uniting the highest point of the axis of the blade d, and its centre f. Such a line produced, K. R. would be three inches behind the shanks, near the handle. This, indeed, is the line along which the stud should lie and traction should be made to be in the axis of the superior strait.

Having to some extent determined the character of the work to be effected at the superior strait, and having supplied the requisite tool in the axis-traction forceps, we may safely imagine the head of the child to have passed the superior strait and to rest on the floor of the pelvis. Now we must consider that the conditions which obtained at the superior strait and necessitated axis-traction, being different from, and I might say absolutely contrary to those at the outlet, the exigencies of the latter are of an entirely different

character from those of the former, and consequently when the direction of the force leaves that of the axis of the superior strait, the axis-traction instrument becomes a dangerous one.

The conditions and exigencies of the outlet differ from those of the superior strait, in that the resistances are *unequal* and consequently cannot be represented by a central resistance whose direction would be that of the axis of the canal, one part of the strait being composed of a fixed, bony, unyielding resistance, as offered by the pubic arch, and the other part composed of the yielding structure of the perineum, which offers much less resistance than the former. These two *unequal* resistances allow the balance of the force applied in the axis of the canal to be spent on the perineum, as the point of less resistance, which can rarely escape rupture.

When all the resistances opposed by the walls of a canal to a body moving in it are *equal*, they can be represented by a single resistance, expressed in the centre of the axis of the canal, and overcome completely by a force exerted along that axis, as illustrated at the superior strait; but when the resistances are unequal and the force is applied in the axis of the canal, the body is arrested at the point of greatest resistance, and the force continuing, it is propelled in the direction of the lesser resistance, as well as in that of the axis of the canal. In fact it rotates around that point of greater resistance as around

a pivot, thus producing extension of the head, and increasing the antero-posterior diameter of the presenting part.

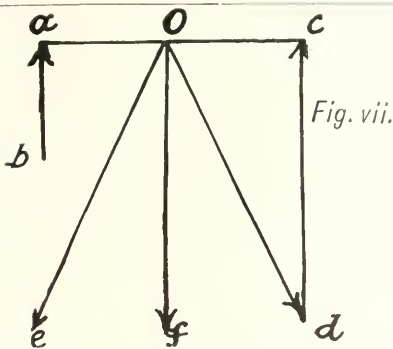


Fig. VII. a, c, body opposed by the two unequal resistances b, a, d, e, o, f, the forces applied in the axis or middle of the body; a, c, o, e, the direction in which the force of is actually spent; i, e, in the axis or middle of the body; a, c, o, e, the direction in which the force of is actually spent; i, e, in the posterior oblique; o, d, the anterior oblique, representing o, f, o, c.

If the two unequal and vertical resistant forces b, a, d, e, (Fig 7) be applied to the body a, e, they can be replaced by a single vertical force, not passing through the centre o, of the body a, c, but through a point corresponding to its percussion point, approaching the greater resistance d, e, in proportion to the greater weakness

of the resistance b, a. If, for example, the resistances were in the proportion of one to three, these resistances would be equally overcome if the force were applied three times nearer the point of resistance. But since this is impracticable, and an axial force, o, f, tends to propel the body, a, c, backward toward a, and downward toward f, or along their any resultant o, e, in an oblique direction, downward and backward. To relieve the strain on the weaker structure, the perineum, we have only to divert the oblique direction of the force o, e, into the opposite oblique direction o, d. Thus it will be observed that this anterior oblique direction of the force o, d, corresponds with the oblique direction of the force f, p, (Fig 5) in the ordinary curved forceps, as demonstrated above.

Hence the proper or perfect obstetric forceps is one in which the force can be expressed in the axis of the superior strait, and in the anterior oblique direction at the outlet.

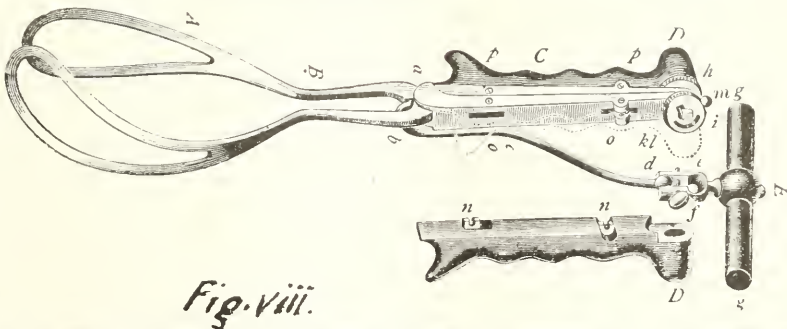


Fig. VIII.

Fig. VIII. A, blades; B, shanks; C, handle; D, D, detachable rubber side-pieces; E, the axis-traction attachment; a, socket between shanks for hook; b, the traction rod; C, the backward bend in rod; d, ball-end of rod; e, clamp-socket for d; f, thumb-screw for securing the ball and socket point; g, g, the rubber cross-bar; h, the ordinary Elliot wheel and threaded bar; i, an additional wheel with a half-threaded slot on opposite side, which both form the lock; k, l, a, 1-4 circular slot and piece limiting the motion of lock-wheel; M, small knob on lock-wheel; u, u, metallic lugs which hold side-pieces in place; o, o, grooves in the metal for the reception of the lugs; p, p, screws passing antero posteriorly through the metal and flat where they pass through the grooves, 1-4 turn of these screws locks or unlocks the side-pieces securely to the metallic position.

The forceps (Fig. viii.) which I have the pleasure of exhibiting to you, consist of the old familiar Simpson blades and shanks, the Elliot handles, and this simple traction rod, and an exceedingly practical look, and permits admirably of just such expression of the force: At the superior strait it is an excellent axis-traction forceps (Fig. ix): at the outlet it is the most desirable model of the ordinary forceps. Though the

fœtal head is free to rotate the instrument cannot slip. It is not a Tarnier model, and possesses none of the defects of such, nor does it require an expert to use it. Whoever can use an ordinary forceps can use this as readily and as successfully as any expert. It does not produce that feeling of insecurity and uncertainty, for the muscular sense of the operator is always called into play the same as with the common forceps.

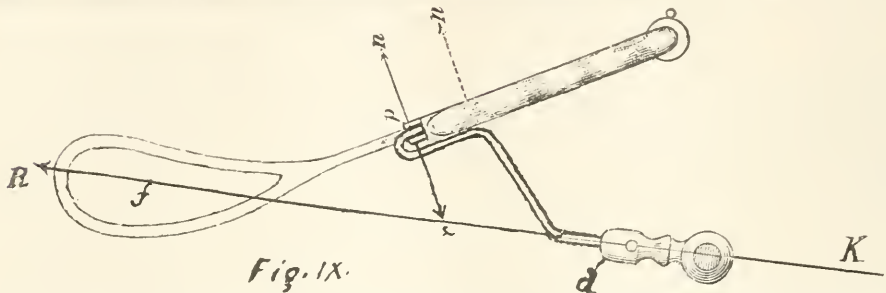


Fig. IX. Side view of forceps with its mechanical effect. K, R, direction of resistance as met with at superior strait; f, centre of blade; d, ball and socket joint. Notice that the socket piece and the ball end of the rod are in the same strait line. p, decussation of shank, showing the socket relieving the hook end of the traction rod; p, n, p, r, the actual expression of the force evolved from the lever effect of the traction rod; e, n, the direct leverage force translated to p, n.

The perineum may be pushed back by the shanks of the instrument, without seriously altering the position of the blades, just as in the use of the common forceps. This in some cases is an absolute necessity, depending upon the situation of the posterior commissure of the vulva. This adaptibility of the instrument to the canal is possessed by no other non-rigid forceps. There is, in fact, no other instrument that will permit

of rotation during the traction, and allow of axis-traction in every case.

Bearing in mind the correction of the conventional error hereinbefore mentioned, a very adequate description of the forceps will be found in the Medical Record of June 10, 1893.

This instrument is manufactured by Richard Kny & Co., of New York City.

215 West 23d st.

On Some Difficulties in the Use of the Curette.*

FANCOURT BARNES, M. D., F. R. S. E.

Consulting Physician to the British Lying-in Hospital.

MR. PRESIDENT AND GENTLEMEN :

As the Science of Gynæcology has advanced, so has the use of some gynæcological instruments become more extended. Of these, perhaps, the curette is rapidly becoming one of those instruments more and more frequently used. This being the case, it seems to me that some discussion on the various methods used for curetting the uterus would be of value.

It should be borne in mind that, curetting being a severe operation, and attended by certain grave risks, is not to be undertaken lightly in any case. The several steps in the operation may appear simple, but from time to time complications arise, during or after operation, which call for all the resources of skill and experience.

If the operation of curetting the uterus is to be efficiently and safely performed, it is essential that the cervix be sufficiently dilated to admit the entrance of the index finger of the operator into the cavity of the uterus. Except, therefore, in early *post-partum* cases, where the cervix has not yet contracted, preliminary dilatation is necessary.

There are two methods of dilating the cervix, the rapid and the gradual. Rapid dilatation is effected by the successive introduction of Hegar's graduated dilators until the cervix will admit the passage of a finger. This is, of course, done under an anæsthetic. The most convenient position is the perineal, the patient being on her back with the knees drawn up and held by assistants. The cervix is then seized with a volsella to steady it, while the graduated sizes of dilators are passed in succession along the cervical canal into the uterine cavity. At the best this is a somewhat rough manœuvre, and with the most delicate handling involves more or less laceration of the os and cervical canal.

The extent of genuine dilatation which can be accomplished in this way is always limited, even in the most favorable cases, that is, in those where the tissues are elastic. When the uterine tissue is more fibrous and inelastic than usual the proceeding resolves itself into a simple forcing and tearing apart of the cervical tissues. In any case there must be bruising. This, of course, may give rise to unnecessary hæmorrhage, as well as subsequent perimetritic inflammation. Lastly, the tissues thus

* A paper read before the British Gynæcological Society, June, 1895.

lacerated clearly add to the other dangers, an additional entrance for septic matters. It is chiefly for these reasons that I most frequently select the gradual method of dilating the cervix.

The gradual method of dilating the cervix is the one which most closely follows the course pursued by Nature. It exemplifies in a striking manner the truth of the Italian proverb, "Chi va più ano, va sano: e chi va sano va lontano," for the gradual dilatation, not only are the dangers just enumerated avoided, but a much further degree of dilatation is obtained, a vital point in curetting. Gradual dilatation is obtained by the use of tents, and, as a rule, requires about twelve hours to accomplish. For this reason it is most convenient to begin the dilatation overnight by the introduction into the whole length of the cervical canal of laminaria tents. I use laminaria tents in preference to sponge tents for the following reasons: The laminaria tent is in itself aseptic, and even antiseptic, by reason of the chlorides, bromides, and iodides with which it is impregnated by the sea water in which it grew. Under the influence of the moisture in the cervix it gently but surely swells up and dilates the canal. At the end of three or four hours it is usually possible to push up one or more fresh tents alongside those in the cervix, or to remove the tents first applied and insert a fresh relay. This can be repeated the next morning, and three hours later the cervix will usually be dilated sufficiently to admit the free

passage of the finger into the uterine cavity.

Of course the same result may be arrived at by the use of sponge tents, but there are several grave objections to their use. Sponge tents should be emphatically condemned. In the first place sponges are very difficult to thoroughly cleanse. They contain various *débris* of dead matter which are difficult to remove, even when they are subjected to boiling in the first instance and steeping in antiseptic solutions afterwards. Secondly, they have to be pressed together by the exercise of considerable force to diminish their bulk sufficiently to form a stick rigid enough to introduce into the uterus. Thirdly, when this has been done, they are brittle and readily fall to pieces when swelled by the cervical fluids. On one occasion I spent a quarter of an hour in removing pieces of a disintegrated sponge tent from the cervical canal before I could begin the operation of curetting. Fourthly, a sponge tent will give rise to offensive and septic discharges after it has been only a few hours in the uterus or vagina. Lastly, it is an inefficient dilator from a mechanical point of view. One of the chief difficulties in dilating the cervical canal is to be found in the internal os uteri. To more easily overcome this I employ laminaria tents of at least four inches in length, and of various sizes. The advantages of a long tent are, in the first place, that it is introduced more readily than the short are, and can often be passed in without speculum

or tent introducer by the fingers alone; secondly, it is easier to remove. The short tents as usually supplied by the instrument-makers are often not long enough to pass through the internal os. The result of this is that the lower segment of the cervix only is dilated and the internal os remains *in statu quo ante*, an insuperable obstacle to the entrance of the curette or finger into the uterus; or, if the tent has been pushed well up, it becomes buried in the cervix. The long tents, however, may always be passed well through the internal os, and still be long enough for the lower end to rest against the posterior vaginal wall. Thus the tent is retained in position, and is readily removed.

The cervix being dilated, the patient is anaesthetised and placed either in the left lateral or dorsal position for operation. If a tent is still in the cervix it is removed and a vaginal douche is given. The index finger of the operator is then passed into the uterine cavity, the fundus of which is pressed down on to it by the other hand outside the abdomen. The whole of the uterine walls and angles are then explored. In this way all irregularities or excrescences are detected, or the presence of retained placental tissue is made out. The finger-nail may be gently used to detach these excrescences, and it is on the whole the safest and best curette to employ, in addition to its being an intelligent and sentient guide. It is not always sufficient, however, and

it then becomes necessary to employ a curette.

There are two chief kinds of curette, the sharp and the blunt. Simons' spoon curette and Sims' sharp curette represent the first; Thomas's blunt wire curette and the finger represent the second.

Simons' spoon curette is a very efficient instrument, particularly useful in carcinomatous and sarcomatous conditions, especially of the cervix, where it is desired to ablate a considerable thickness of tissue. On the other hand, used in endometric conditions, it requires care and has often in heedless hands caused perforation of the uterus. The curette is passed into the uterine cavity as far as the fundus, and being laid parallel with the wall it is made to traverse in succession every part of the anterior, posterior, and lateral walls of the uterus and all its angles. The degree of force required can only be learned by experience, but the minimum consistent with efficiency is always to be aimed at. Some parts of the mucosa may be perceived to be roughened, by the thrill imparted to the hand holding the curette, and to such localities particular attention should be paid.

There is generally considerable oozing, which washes down into the vagina shreds of mucous membrane detached by the curette. Pieces of placental tissue may sometimes be recognized among them by the naked eye. When the uterus has been curetted an intra-uterine douche is

employed. I generally use a weak solution of tincture of iodine in the proportion of one or two drachms to the pint. The douche is administered through a gum elastic male catheter attached to a Higginson's syringe. The catheter is passed up to the fundus and the dilated cervix allows a free return of the injected fluid. This removes all clots and *débris* that may be left in the uterine cavity, and in addition is an efficient antiseptic and hæmostatic. Where there is reason to suspect the presence of tissue liable to become septic it is useful to insert a pencil of iodoform of about two inches long into the uterus. This not only acts as an antiseptic, but assists in draining the uterine discharges.

There are several definite risks in the operation of curetting. As first practised by Récanier, sharp curettes alone were employed, and in consequence of the comparative frequency with which perforation ensued, the operation came to be regarded askance. With the blunt instrument this accident can hardly occur, unless it be from rough usage; and there is reason to believe that in some cases no harm has followed from perforation of the uterine wall. Perforation is a risk which care may avoid, and which antiseptic methods have rendered less dangerous than before. Cervical atresia has followed curetting in exceptional cases. Troublesome hæmorrhage may occur at or soon after operation, but can be controlled by the application of pledgets of gauze or tampons steeped in

some hæmostatic solution, such as perchloride of iron or tincture of iodine. The more serious and troublesome complications of curetting are the possible sequelæ. Pelvic peritonitis and cellulitis have frequently been observed, and are probably due in every case to absorption of septic matter by the uterine lymphatics either at the time of operation or as the result of decomposition of the uterine discharges after operation. The proneness of the cellular tissue, which is so abundant in the pelvis, to become infected in this way, is but too well known, and an unfortunate result can in many instances only be avoided by continuous and full antiseptic precautions. It is easy to say these dangers should never arise, but those who can say so have never seen difficult or complicated cases.

I will now briefly relate some types of cases in which the use of the curette can alone relieve the patient. In some cases of *chronic endometritis*, associated with repeated hæmorrhages or profuse menorrhagia, the ordinary routine intra-uterine treatment with tincture of iodine, nitric acid, or zinc-alum points, fails.

In the management of curetting for chronic metritis the first point which arises is, how to dilate the whole cervical canal efficiently. This question of course applies to all cases in which the curette is used, but with especial force to cases of chronic metritis, because there the uterus is at its smallest and the cervix at its hardest.

It is here that the gradual method

should be used. The following is a case:—A. W., a married woman, aged forty-four, married twenty years, came under my care on November 27, 1890. She had had one child, born nineteen years ago, and since then she had never been pregnant. During the last five months she had suffered from nearly continual hæmorrhage, with latterly a great deal of pain, most marked in the left iliac fossa. The sound passed three inches in the normal direction, the uterus was bulky, and no other morbid condition could be detected in the pelvis. On November 29, the patient being under the influence of chloroform, and the cervix dilated, the uterine cavity was explored by the finger, but nothing abnormal could be detected. The uterine walls were then carefully curetted with a Sims' sharp curette and the cavity well irrigated with a solution of tincture of iodine. The patient made a good recovery, and was entirely relieved from her previous symptoms.

In the case of a patient sent to me by Professor Joubert, of Calcutta, there was profuse stringy catarrh from the uterus, which was subinvolved. She had had several children, the last about five years ago. In this case all my efforts to relieve the symptoms by intra-uterine treatment were of no avail. I finally curetted the uterus, and the symptoms disappeared. In this case there was no history of abortion.

In cases where an abortion is of recent occurrence the finger is by far the best curette. Here is a case

in point. The patient, aged twenty-nine, married seven years, consulted me on June 29, 1891. She had borne two children, the last being three and one-half years old. She stated that she had suffered almost constant loss for three months, and she thought herself pregnant. On examination I found she was about five months pregnant, and there was a brown watery discharge.

On July 15, abortion occurred spontaneously, and the placenta being adherent, was removed by the hand. On the following days she suffered from abdominal pain and tenderness, the temperature was just over 100° Fahr., and the discharges became offensive. As these symptoms persisted, on July 30 I explored the uterus with the finger, the patient being under chloroform, and detached several pieces of decomposed placental tissue from the fundus. In this case no preliminary dilatation was necessary, and the finger-nail formed an efficient and safe curette. The patient made a good recovery.

In puerperal cases it is rarely necessary to use a metal curette. It is further undesirable, owing to the danger of perforating the softened uterine wall.

The presence of retained products of conception after abortion is by far the most common cause for curetting. These are the cases above all others which call for the operation. The usual history is that of metorrhagia, more or less continuous, associated with a bulky uterus. When the uterus is curetted in these cases pla-

cental *débris* is always removed and the patient makes a speedy recovery. Curetting with Sims' sharp curette has been resorted to for the purpose of diagnosis.

To conclude, the following are the chief questions arising out of the operation of curetting:—

(1) What are the symptoms which point to the clear necessity of curetting the uterus?

(2) Which is the safest and most

natural method of dilating the cervix?

(3) Should the curette be used in cancer of the uterus, more especially when the growth is at the fundus?

(4) Is it advisable to resort to the use of the curette as a means of making a diagnosis?

(5) Is it possible to establish a satisfactory system of drainage of the uterine cavity after curetting?

The Dangers of Hypnotism.

HAROLD WILLIAMS, M. D.

BOSTON.

RECENTLY, while conversing with one of the most distinguished members of the Suffolk bar, a gentleman who has given much time and study to questions involving medico-legal issues, I was greatly surprised to see how vague and inaccurate a knowledge he had acquired of the phenomena of hypnotism, and how ignorant he was of the rapidly increasing employment of these phenomena in the affairs of modern life.

Since it is the belief of the writer that the present unrestricted use of hypnotism is a serious menace to the welfare of the community, it is the object of the present paper to bring this subject once more before the notice of the public: to explain what hypnotism is; to describe the character of its phenomena; to narrate the

uses to which it has been applied; and to point out the urgent necessity of the enactment of adequate laws which shall restrict or prohibit the further abuse of this dangerous agent.

Hypnotism was defined by the committee of the *Académie Royale de Médecine de Belgique*, appointed to investigate this subject, as follows: *—

"Hypnotism consists in a dynamic modification of the nervous system, particularly the brain, ordinarily provoked by the external impressions or special manœuvres. It is a sort of experimental neurosis in which the will is extinguished or in abeyance, consciousness is diminished or abolished, the senses are exalted or depressed, and muscular action is prevented. It is a condition secondary,

* *Saunders Annual*, 1889, vol. 2, c. 5.

in which the personality is transformed and becomes docile under the direction of the person who provokes the hypnotic state. *It is a sort of induced sleep in which the subject becomes an automaton, without reason, will or memory.* It is a species of disassociation of the diverse faculties, a rupture of the normal equilibrium, characterized by a weakness of the higher faculties of the brain, which permits the lower or automatic to predominate." The italics, which are inserted for emphasis, are my own.

The power in virtue of which a person becomes hypnotized is a power inherent in the subject himself. Professor Ford, Director of the Central Lunatic Asylum in Zürieth, believes that every mentally healthy person is hypnotizable* and Dr. Qiebauld† of Nancy avers that one-fifth or one-sixth of all hypnotic subjects can be thrown into the state of somnambulism.

These statements, advanced by the most ardent advocates of the usefulness of hypnotism, are probably slightly exaggerated, but they go to show how general the application of hypnotism may become, and to show further that probably from ten to twenty out of every hundred healthy persons are susceptible to being thrown into an "*induced sleep, in which the subject becomes an automaton, without reason, will or memory.*"

Thus having seen what hypnotism is, and having learned the universal

ity of its application, it now becomes necessary for us to consider the methods by which hypnosis is induced, and to examine the character of its accompanying phenomena. Hypnotism is usually produced by *suggestion*. That is, the idea is suggested to the subject that she will sleep and she does sleep. This suggestion may or may not be accompanied by special manœuvres. The following description, taken from an article by the writer,* comprehends the majority of the methods at present in vogue: "The operator tells his patient he is going to make her sleep. He looks at her fixidly; frowns at her or smiles. . . . he tells her that she will soon become sleepy but that she must not resist that drowsiness, for it is that which will enable him to cure her. Then he sits down before her and requires her to look at some bright object; sometimes to look into his eyes; in this latter case he looks at the bridge of her nose, and he, by looking at one object, can sustain his gaze longer than she can while looking at two. Or he tells her to look into his eyes, and then comes very near to her, thus bringing a great strain upon the muscles of the eye ball. Then the physician makes mysterious passes with his hands, or strokes her eyelids or her forehead. Sometimes he makes a blowing sound. Then he tells her she is sleepy; that she is almost hypnotized; that she is hypnotized, and by this time in most cases she is hypnotized." Sometimes he pro-

*Albert Moll of Berlin, Science Series, Ed. by Havelock Ellis, p. 39.

†Bernheim's Suggestive Therapeutics, Tr. by C. A. Herter, M. D., page vii, Preface 2d edition.

* Boston Medical and Surgical Journal, April 9, 1891, p. 356.

nounces the word "sleep" in a commanding voice*.

The above is a fair example of the induction of hypnotism for the first time: subsequently it can often be induced by a word or a sign by the operator in a neighboring room. The example given is an instance in which the subject more or less co-operates with the experimenter. But after a first hypnotization a person can usually be re-hypnotized by the same operator against her will. Dr. Heidenhain, Prof. of Physiology at Breslau has shown that persons can be hypnotized against their will† as in the case of soldiers, wherein he hypnotized against the express commands of their officers, who had forbidden them to sleep. The sleep produced by hypnotism varies from drowsiness (Bernheim's *first degree*) to deep somnambulism. In this latter condition the subject will perform any act which the operator may command, from mewing like a cat and signing deeds and papers, to discharging pistols at his friends and relatives‡. He will see sights, hear sounds, perceive odors, which do not exist, or he will not see, hear or smell those which do exist, in acquiescence to the command or suggestion of the hypnotizer.

Closely associated with the condition of suggestion during hypnosis is that phenomena which is described as post hypnotic suggestion. To produce this phenomena it is suggested

to a person in the condition of hypnosis that upon awaking, sooner or later, they shall perform some unusual or peculiar act: the time which shall elapse between the suggestion and the act seems to have but little effect upon the completion of the latter, at least within moderate limits. An excellent example of post hypnotic suggestion is afforded in the following case reported by Dr. Morton Prince* of Boston:—

"I told my subject, Mrs. R., after she was hypnotized, that on the following day when she sat down to dinner she was to put on her bonnet and keep it on during the whole of dinner time. The next day I received the following letter:

My Dear Dr. Prince:—"My girl is very sick, etc., etc. I think I am getting insane. At dinner time I would wear my hat during the meal." etc.

On further inquiry I obtained the following story which I give substantially in the original language:

"As I was going to dinner, my girl asked me what I was going out for."

"I am not," says I: "I am going to eat my dinner."

"Then what have you got your hat on for," says she.

I put my hand to my head and there was my bonnet.

"Lord, Mamie," says I, "am I going crazy?"

"No mother," says she, "you often do foolish things."

"I began to get frightened but

* Bernheim, of cit., page 2.

† Mott, of cit., p. 45.

‡ Bernheim, of cit., p. 163.

* Boston M. and S. Journal, May 15, 1890, page 463.

took off my bonnet and went into the next room to dinner."

Then the younger child similarly asked her where she was going, and called attention to her having her bonnet on. A second time she raised her hand to her head and to her surprise found her bonnet on. She again took it off, and later, when her husband entered, the same thing was repeated. But when she found her bonnet on her head for the third time she made excuse of the stormy words that ensued to declare she would "keep it on now till she was through." After dinner, being alarmed, she consulted a neighbor about it. All sorts of acts can be caused by post hypnotic suggestion, of which the above is an ordinary example.

Other phenomena of hypnosis, important as bearing upon the present paper, are the phenomena described as post hypnotic hallucinations, positive and negative. The following example of a positive hallucination is taken from Dr. Bernheim*:—

"I recently hypnotized a remarkably intelligent young girl, with a positive mind, who was not in the least flighty and whose good faith I can guarantee. I made her see an imaginary rose when she waked up. She saw it, touched it, smelt it. She described it to me."

I quote an example of negative hallucination from the same writer.† He hypnotizes a young girl and gives

her the suggestion that on awakening she will not see him; he will be gone. He then awakens her and though he stands before her, sticks pins into her, and talks to her, she will not recognize any sensation emanating from him. Desiring to see how far this condition admitted of abuse from a medico-legal point of view, Dr. B. addressed insulting words to her and threatened violence. Ordinarily very sensitive and reserved, she gave no signs of feeling. She was then re-hypnotized and told that on awakening Dr. B. would be there. This works well and Dr. B. questions her. At first she remembers nothing at all about it, but on repeated and insistent declaration she remembers what he did, and with "great hesitation and blushing," gives an account of what happened. In addition to these phenomena which I have narrated and described, phenomena which have been demonstrated by the critical logic of fact, we find certain other phenomena claimed for it by observers of the mystic school: phenomena such as thought-transference, community of sensation, etc., etc. Those of my readers of a more credulous turn of mind, who are desirous of looking further into this branch of hypnotism, are referred to an article in the *Arena* for April, 1891*.

I allude to this subject here in order to say that the line between the real and imaginary phenomena of hypnotism is sharply drawn, and to

*Bernheim, of cit., p. 40.

†Bernheim, *American Journal of Psychology*, 1888-9, page 323.

**Arena* for April, 1891, by R. Osgood Mason, M. D.

point out that it is largely due to such vague speculations as those referred to, that the real phenomena of hypnotism have not attracted the attention they deserve. And in regard to the mystical let me say once for all in the words of Dr. Bernheim: "No magnetizer exists, no magnetic fluid exists. . . . The induced sleep does not depend upon the hypnotizer, but upon the subject."*

Such then in brief are the conditions of hypnosis and the phenomena which accompany it, and, as we have seen above, the power of becoming deeply hypnotized is a power that is inherent in probably from a tenth to a twentieth of our population. Children are especially susceptible to it.†

Having thus arrived at an idea of what hypnotism is, it next becomes necessary for us to consider the uses and abuses made of it. These I may classify under the heads of, (a) amusement, (b) experiment, (c) therapeutics, [d] morality, (e) immorality.

(a) The employment of hypnotism for purposes of amusement is so well understood that I need not waste space by a detailed description of it here. Public exhibitions, by traveling "magnetizers," who exhibit the phenomena of hypnotism for money, clothed very often in the garb of the mysterious, are familiar to us all. Donato and Hansen have gained for themselves great notoriety in Europe: Bishop and Carpenter in the United States. Such exhibitions are admitted by all medical authori-

ties to be extremely dangerous to health as well as highly objectionable in other respects, and are now prohibited by law in many communities in Italy, Austria, Switzerland (some cantons) and in Copenhagen. In our American cities, Cincinnati has led the way by interdicting them and adopting ordinances constituting them misdemeanors.* †

(b) For experiment, hypnotism has been largely employed by medical men, scientists and quasi-scientists, physiologists, psychologists and private individuals. Apart from their medical value, which I shall touch upon later on, these experiments subserve no useful purpose, but are chiefly undertaken for the gratification of idle curiosity and love of the marvellous, and should be interdicted in the same manner as should public entertainments. They are productive of no advance of knowledge: they are dangerous to the subject, often causing convulsions, catlepsy and insanity; and such experimenting upon living human beings is demoralizing to the experimenters themselves.

(c) The therapeutic value of hypnotism I have fully discussed in a previous paper.‡ The conclusions reached were that hypnotism, while not without value as a therapeutic agent, was a remedy too dangerous to be employed except under the rarest and most unusual circumstances; that it would accomplish nothing that other therapeutic agents would not

*Bernheim, of cit., p. 182.

†Bernheim, of cit., page 2.

*Hypnotism by Frederick Bjornstein, M. D., Tr. by Baron Nils Posse.

†Med. Record, March 28, 1891, page 379.

‡Hypnotism by the author Bomst, Apr. 9, 1891.

also accomplish, and that it was dangerous alike to patient and physician. And this view, I believe, expresses the opinion of the majority of the regular profession of medicine. *Dr. Tremssen, Professor of the Munich School, says of its therapeutic use, "that a man might as well take a cannon to shoot at sparrows"; and Dr. Charcot, the French neurologist, believes that the cases in which it should be used are very few.† But on the other hand, I should say that the number of cases in which hypnotism has been used in medicine is simply enormous. ‡Dr. Dibeault of Nancy has hypnotized from 15,000 to 20,000 persons; Dr. Benheim's record now reaches 10,000, and Professor Charcot's figures are doubtless very large. The same may be said of Professor Ford of Zurich, of Dr. Moll of Berlin, and of many other physicians.

In this country it is now rapidly coming into use, and its benefits are loudly lauded by its enthusiastic votaries.

(d) The moral or educational employment of hypnotism has attracted considerable attention in Europe. It has been practiced as an educational or corrective agent amongst children and the insane. With respect to the latter it has not been a success. Forel, Brush, Charcot and other physicians have come to the conclusion that it is of little value in such cases:

first because of the difficulty of hypnotizing the insane: and second because it is apt to substitute a new train of delusional ideas.* Its application to the correction of moral obliquity in children, however, has been far more widespread. Children, as we have seen, are easily hypnotized, and it has been employed for the correction of fearfulness, passion, depraved habits, lying, etc.† But Dr. Sallis hints that such a use of hypnotism is objectionable, because the children soon learned to hypnotize each other and used the power for the furtherance of vicious habits. Experience seems to show that the value of hypnotism for moral or educational purposes is very limited indeed.

(e) It is the adaptability of hypnotism to immoral purposes that is the *raison d'être* of the present paper, and I believe that in hypnotism we have an agent which is of the greatest menace to the welfare of society. That this truth has not yet been forced upon the public, I believe only to be due to the lack of knowledge amongst the criminally disposed of the adaptability of hypnotism to the furtherance of crime. This subject I purpose to consider, somewhat in detail. In the first place in the condition of trance. We have seen in the definition of hypnotism that in the deeper forms of hypnosis "*the subject becomes an automaton, without reason, will or memory.*" Of the form of

*Munchener Medicinesche Wochenschrift, July, 30, 1889.

†Griffiths in Saporis, Nov., 1890.

‡Dr. Hamilton Osgood, B. M. and S. J., May 8, 1890, page 453.

*Saporis Ann., 1895. 2c. 5.

†Liebault, Ann. of Psych, 1888-9, Vol. 2, page 322.

‡Same.

this condition, described as trance. Professor Charcot remarks: *

"Rape and attempts at rape are the crimes that are oftenest committed upon hypnotized persons. That this should be so is readily seen, for in the lethargy especially, as I have said, the subject is, so to speak, so much lifeless matter offered to the lechery of the magnetiser." The history of hypnotism affords many examples of this employment of hypnosis, the Lévy case being perhaps the most widely known. Lévy was a dentist in Rouen, who assaulted a girl in the magnetic sleep, and who was sentenced to imprisonment for ten years in consequence thereof.† "There are some other cases in Liegeois (Liegeois is Professor of Jurisprudence in Nancy): in Gottdammer's Archives for 1863, and in F. C. Muller's book."‡ The famous Castellan case, described by Bernheim§ should also be alluded to.

Persons can also be robbed in this condition, and the loss of memory which usually follows upon awakening from the hypnotic sleep is an added factor of danger, rendering as it does, the proof of the crime well-nigh impossible. Thus in the condition of trance we have seen how crimes may be perpetrated upon the unconscious subject. We now come to a consideration of how, *by suggestion*, the patiental so unconscious, may become, as it were, a tool in the hands of the operator. Actual proof

by courts of law of crimes thus committed are, so far as I know, wanting at the present time. But that convictions cannot be cited is probably not due to the fact that crimes have not been so committed, but to the difficulty of proof. In substantiation of this opinion I may say that the so-called "Laboratory crimes" of foreign experimentors are very numerous and conclusive. For example, a patient is hypnotized and offered a cup which she is told contains arsenic and is deadly poison. She is ordered to drink it and she does drink it. She is ordered to give it to her mother, telling her at the same time that it is tea, and again she obeys. Liebault* took a revolver, went into the garden and fired it. In less than fifteen seconds he suggested to Mrs. G., to kill with the revolver, Mr. P., a magistrate who was present. Without a moment's hesitation, Mrs. G. fired a shot (from the unloaded pistol of course) at Mr. P.

Liegeois and Ford both believe that suicide and murder may thus be committed, and cite many experiments to prove the same. Albert Moll† is doubtful and says such experiments are inconclusive "because some trace of consciousness always remains to tell the subject he is playing a comedy." But this reason is invalid if the clause in the definition of hypnotism of the Belgian Academy is true, namely, that "consciousness is diminished or abolished." In a similar manner the crimes of arson

*Forum, April, 1890.

† Albert Moll, of cit., page 336.

‡ Bernheim, page 160.

*Bjornstein of cit. p. 109.

†Moll of cit. p. 338.

and robbery may be committed, or by suggestion the subject may be forced into signing declarations, deeds or wills.

By a series of experiments similar to the foregoing, it has been shown that persons may be caused to commit murder, suicide, robbery and other crimes, while under the influence of post hypnotic suggestion, a most interesting illustration of which has recently been afforded by the celebrated French case of Gabrielle Bompard. Gabrielle's defence was that she was an accessory to the murder of M. Gouffé, acting under the influence of post hypnotic suggestion, having been hypnotized by Michel Eyrault, her co-partner in the crime. It was proved that she had been hypnotized, but not proved that she had ever exhibited the phenomena of post hypnotic suggestion. It was also not proved that Eyrault had ever hypnotized her. M. Liegeois testified that the defence was possible, but that he had no experience of the state of Gabrielle Bompard. Permission to hypnotize her was refused by the court. M. Bronardel and others testified *that they did not believe Gabrielle could be hypnotized deeply enough to perform such acts*. Some doubt seems to have existed in the minds of the jurymen, for Gabrielle was found guilty under extenuating circumstances, while Eyrault was found guilty with no such extenuation.

Post hypnotic hallucination also offers great possibilities for the furtherance of crimes, especially for the

purpose of subornation of witnesses. The Tisza-Eslar affair, described by Bernheim, affords an excellent example of this.*

.. A young girl, fourteen years of age, who belonged to the reformed faith disappeared. Nineteen Jewish families lived in this Hungarian village. The rumor soon spread that the Jews had killed the girl for her blood. A corpse was found in the Theiss and was recognized by six people as that of the girl. Public opinion was decided, and thirteen unhappy Jews were arrested. The judge, a great enemy of the Jewish race, busied himself in confirming with active ferocity the conjecture which blind hatred had conceived. The sacristan of the synagogue had a son thirteen years old; he was summoned before the judge. The child knew nothing of murder, but the judge, wishing by all possible means to establish what he believed or wanted to be the truth, gave him into the hands of the commissioner of public safety, who was an expert in extorting confessions. The latter took the boy to his house. Several hours later the child had confessed; his father had allured the girl into his house, and had then sent her to the synagogue. The boy Moritz, heard a cry, went out, looked through the key-hole of the temple door, and saw Esther stretched on the ground; three men held her. The butcher cut her throat and caught the blood in three basins. The child was isolated for three months under the care of a

*Bernheim, of cit., p. 167.

guardian who never left him. When he came before the assembly he persisted in his confessions. The sight of his father and twelve co-religionists threatened by the gallows, the most earnest supplications to tell the truth, tears and curses,—nothing moved him. Without hesitating he repeated the same things he had seen in the same terms. We know that justice triumphed in the end, causing all the friends of Hungary and of civilization to rejoice. How are the child's statements to be explained?" And Benheim then goes on to explain how the probable solution to the question is the induction of hallucination. Other instances of a similar character are given by the same author.

The application of hypnotism to quackery, better known in this country under the name of magnetism, is almost infinite and is very largely practiced in our American cities.

Such then are the phenomena of hypnotism and the employment thereof. We have seen that the benignant application is, at the best, of doubtful utility and very rarely called for.

We have seen that its capabilities for crime and deception are almost limitless. In an editorial article under the same heading as that of the present paper, the editor of the *British Medical Journal*, March 28, 1891, writes:—"A demand is arising in France, in America and in other countries, that the practice of hypnotism should be placed under legal restrictions. It is a grave matter for consideration whether the Legislature ought not to be asked to interfere in this country also."

The writer of the present paper cannot too forcibly assert it as his conviction that the whole subject should be brought before the Legislatures of the different states for the enactment of laws prohibiting the use of hypnotism in a manner similar to the prohibition of other dangerous agents. Hypnosis, in view of its vast criminal possibilities, should only be lawfully employed for the purpose of saving life, and in the case of such employment the *onus probandi* of the necessity thereof should be thrown upon the operators.

Electrotherapy as a Means of Diagnosis in Gynæcology.*

DR. G. APOSTOLI.

PARIS.

Dr. Apostoli, after a long and thorough trial of his method, has come to the following general conclusions:

1. The faradic current of tension (generated by the coil of long and fine wire) applied to the uterine cavity, according to the rules established by Dr. Apostoli in 1883, re-

* Read before the 1895 meeting of the British Medical Association.

lieves, for a longer or shorter time, all ovarian pain of nervous or hysterical origin: but remains powerless or nearly so in cases of ovarian pain caused by inflammatory lesion of the peri-uterine tissue or of the appendages.

2. The same faradic current is therefore useful in diagnosis, inasmuch as it helps us to distinguish the nature of so-called ovarian pain, and to determine rapidly the differential diagnosis between hysterical and inflammatory ovarian pain. Where the two kinds of pain exist in the same patient we are helped to understand their nature by the fact that the one is relieved and the other is not.

3. If, then, the curative effect of the faradic current clears up or rectifies a doubtful diagnosis, it protects us at the same time, from undertaking a useless operation.

On the other hand, if the same faradic current proves ineffective, the lesion being inflammatory, we are led to resort to a supplementary galvanic treatment or to a surgical operation sooner or later.

4. The constant galvanic current, applied to the uterine cavity in doses gradually increasing from 50 to 120 milliamperes, according to the rules published by Dr. Apostoli in 1884, and bearing in mind the individual susceptibility and tolerance, will be almost always supported without much pain during the séance, and without febrile reaction afterward, if the parts adjacent to the uterus are free from inflammation.

Simple cystic, peri-uterine tumors,

which are neither inflamed nor suppurating (such as ovarian cysts and hydro-salpinx,) may also show perfect tolerance of the galvanic current.

The galvanic current is also sometimes perfectly supported by cases in which the uterus is surrounded by old inflammatory products or exudations no longer pathogenic.

5. There are three classes of cases which should be considered as exceptions to the preceding rule, for they bear the galvanic current more or less badly, though they do not necessarily produce much febrile reaction after the séance.

They are:

- A.—Certain forms of hysteria.
- B.—Fibro-cystic tumors of the uterus.
- C.—Enteritis with false membrane.

It is generally easy to diagnose these cases of intolerance.

6. All acute peri-uterine inflammation (of the pelvic cellular tissues, of the peritoneum and especially of the appendages) will cause the galvanic current to be badly borne when it passes 40 or 50 milliamperes, and will cause intolerable pain and febrile reaction when carried beyond this intensity.

7. The intolerance for the galvanic current is generally proportionate to the extent and gravity of the lesions referred to and increases with the intensity of the current employed—especially when it passes 40 or 50 milliamperes.

8. All inflammation of the appendages which is *curable (symptomatically at least)* without radical operation, will bear the galvanic cur-

rent better and better, and there will be a corresponding improvement of the prominent symptoms such as pain and hæmorrhages.

The intolerance noted at the beginning progressively disappears.

9. All grave inflammatory lesions of the appendages, and notably all suppurative processes which are *incurable (even symptomatically)* by conservative means, show the same intolerance from the beginning to the end of the treatment which was noticed at first, and which is apt to increase instead of diminish if the treatment is continued.

10. Thus, the simple study of the tolerance or intolerance of the intra-uterine galvanic treatment, and especially of the post-operative pain and fever occurring on the evening of, or the day following the treatment, enables us to make the diagnosis. It also, in 4 or 5 séances, given twice weekly, informs us of the condition of the appendages, of their possible inflammation and its degree, and in this way lessens the number of laparotomies and exploratory incisions.

11. The same study of the so-called galvanic reactions also informs us rapidly (in 5 to 10 séances) of the curability of these inflammatory

lesions which the electric current has demonstrated, and in consequence of this it tells us in one case to abstain from operation while in another it shows an operation to be urgent.

12. En résumé. Gynæcological Electro-Therapeutics, carefully, methodically and patiently applied, instead of being opposed to the marvellous progress of surgery, comes to its aid.

Independently, in fact, of the great therapeutic service which it renders every day, electricity serves as a *touch-stone*: it assist us in diagnosis and thus directly serves the interests of surgery, one case showing an operation to be useless and dangerous, in another that its necessity is urgent.

Thus many of laparotomies, so-called exploratory incisions and mutilations practiced without due deliberation for the relief of rebellious ovarian pain or for lesions of the appendages of uncertain nature, should be, from this time forth, delayed or formally proscribed until all the resources of *faradic sedation* on the one hand and of the *intra-uterine galvanic effect* on the other, have been tried. Experience has abundantly proved these currents to be innocuous, if given with necessary aseptic precautions.

The General Therapeutic Effect of the Alternative Electric Current of High Frequency and of High Tension.*

DR. G. APOSTOLI.

PARIS.

Dr. Apostoli, together with Dr. Berlioz, on the 18th of March 1895, presented a paper on the above mentioned subject to the Academy of Sciences of Paris. He, now, after longer and riper experience, desires to present a summary statement of his general conclusions:

1. According to Professor d'Arsonval's discoveries, alternative currents of high frequency and of high tension, exert a powerful action upon all living bodies submitted to their inductive influence.

2. The best method of applying these induced currents is to place the patient, free from all contact with electrodes, in the circuit of a large selenium traversed by these currents.

The patient being thus completely insulated, the currents, which circulate in his body by *auto-conduction*, have their origin in his tissues. The body plays the role of a closed induced circuit.

3. By this method the physiological discoveries of Professor d'Arsonval are confirmed and we are able to prove the powerful influence of these currents upon the *vaso-motor* system—although they produce absolutely no sensation and although they have no apparent effect upon the motor or sensory nerves.

These currents have nevertheless a powerful action upon all the nutritive functions; as has been verified by Dr. d'Arsonval's numerous analyses of the gaseous products of respiration and by Dr. Berlioz's not less numerous analysis of the urinary excreta.

4. The general therapeutic applications to be deduced from this physiological action are confirmed by clinical observation.

Dr. Apostoli has now treated more than a *hundred* patients by this method at his clinic and at his private consultation rooms. The greater number of these patients have been greatly benefitted by this new treatment which, be it remarked, has been used to the exclusion of all other forms of medication, dietetic or otherwise.

5. These currents exert in the majority of cases a most powerful and generally beneficial action upon disease due to *slackening of the nutrition* by accelerating organic exchanges and combustion. This is proved by analysis of the urine made by Dr. Berlioz, of which the following is a brief résumé:

The quantity becomes more normal; the products of organic waste are better eliminated.

The *increased combustion* is shown by the diminution of *uric acid*, while

* Read before the 1895 meeting of the British Medical Association.

the percentage of *urea* is generally increased. The relative proportion of these two substances changes under treatment so as to reach in general the figure of 1-40.

The elimination of the mineral products is also changed, but in a manner less marked.

6. When daily séances are given, each lasting fifteen minutes, we may generally observe in patients submitted to the influence of these currents the following modification in their general condition. We mention them in the order of their occurrence :

Return of sleep.

Increase of strength and vital energy.

Increase of gaiety, of power for work and ability to walk.

Improvement of appetite, etc.

In short, *general progressive improvement*.

This general improvement often manifests itself after the first séances before any local influence is apparent and before any change has occurred in the urinary secretions.

7. Local pain and trophic changes are often more slowly affected by these currents and at times they are entirely refractory for a longer or shorter period.

In such cases the same currents must be applied locally by contact with the electrodes.

This subject will be treated later on in a separate communication.

8. The diseases which have appeared incurable by this treatment

are those not associated with well defined organic changes such as *hysteria* and certain forms of *neurasthenia*.

Dr. Apostoli has also observed that certain *localized neuralgias* are refractory to this form of currents; they require its more direct local application.

9. The diseases which have derived most benefit from this therapeutic agent, belong to the *arthritic class*—*rheumatism and gout*.

10. In certain *diabetic* subjects the sugar has disappeared altogether from the urine under the influences of these currents, while in others there has been no such change, notwithstanding the manifest and constant improvement in the general condition.

Is this difference due to the imperfection of the electric apparatus or to the manner of its application? It is hoped that further experience will soon afford an answer to this question: although the fact that diabetes has many different causes, may in itself explain the difference in the results obtained by this treatment.

11. In conclusion, the currents of high frequency and of high tension introduced into electro-therapeutics by Dr. d'Arsonval greatly increase the field of action of medical electricity.

They furnish general medicine with a new and valuable means of treatment, capable of modifying more or less profoundly the processes of nutrition.

The Treatment of Vulvitis.

Lecture Notes from the Gynecological Clinic of Dr. C. G. Cumston, Instructor in Clinical Gynecology, Tufts College.

THIS affection is often dependent upon an existing vaginitis, which should always be looked for. Vulvitis has for principal factors in its production, uncleanliness, diabetes, chlorosis, scrofula, consequently it is of greatest importance to treat these affections if they exist.

For the burning and itching, which is often most intense, the following washes were given by Dr. Cumston as examples.

R. Liq. plumbi subacetat 4.0.
Tinct. hyoscyami 8.0.
Aq. camphoræ.
Aq. laurocerasi aa. 120.0.

m. et f. lotio.

D. S. Apply constantly, tepid, with saturated cloths.

R. Plumbi acetat. 20.0.
Aq. rosar.
Aq. laurocerasi aa. 100.0.

M. D. S. Use as a lotion as often as necessary.

In patients suffering much pain and profuse secretions, a lukewarm bath, to which from ten to fifteen grammes of alum have been added, should be given daily, and the patient kept in bed.

For the excoriations produced by the irritating discharge, as well as from scratching, the two following formulæ were recommended.

R. Hydrarg. precip. alb. 0.20.
Ung. zinci oxyd. 10.0.

M. D. S. Apply twice daily to the parts.

R. Europhen, 1.0.
Natrü bicarb.
Pulv. oryzæ aa. 10.0.

M. D. S. Powder the parts freely, after washing the parts with soap and water. To be repeated twice or three times daily.

Tepid vaginal irrigations of about a quart of a 1 in 4,000 solution of potassium permanganate once daily is an excellent curative remedy.

Carbolated camphor, made by adding one part in weight of carbolic acid to three parts camphor, allowing the mixture to stand twenty-four hours and then filter through gauze, is an excellent medicament in the non specific vulvo-vaginitis. It is applied by tampons soaked in this preparation, which are introduced into the vagina and are placed over the vulva, and allowed to remain for twenty-four hours and then renewed.

Another very good preparation is a 5 per cent. watery solution of ichthyol or thiol. The latter is perhaps to be preferred, as it does not stain the clothing as the former preparation does, and besides it is very much cheaper. As to the action, thiol appears as prompt and as perfect as ichthyol.

The vulvo-vaginitis of little girls is best treated by potassium permanganate as above given, only a *rubber male catheter* should be employed instead of a glass irrigation tube.

Vulvitis and vaginitis should be treated and looked after carefully, as

Dr. Cunston believes that many cases of endometritis, either of the cervix or corpus uteri in adult virgins, are due to carelessness of the parents or physicians in not treating the irritated condition of the external genitals in little girls.

REVIEW OF GYNÆCOLOGY.

CASES OF RETRODEVATION OF THE PRAGNANT UTERUS, INCLUDING A CASE OF PREGNANCY IN AN INCARCERATED CORNU AND A CASE COMPLICATED BY AN OVARIAN TUMOR: WITH REMARKS. By W. A. BURRAGE, M. D.

I present brief histories of six cases of retroversion of the pregnant uterus and fuller histories of two other cases that have come under my observation during the last five years, eight in all. The diagnosis of pregnancy was well established in every case.

The first five cases were treated as out-patients, and their subsequent histories are necessarily incomplete.

There were five cases (I to V) of uteri about two months gone and in the second or third degree of retroversion: four were treated by replacement by means of bimanual manipulation, or by packing and a pessary. There was one case (V) of an incarcerated uterus three and a half months pregnant, that, having been replaced, carried the fetus to term. Two years later the woman appeared with the uterus in the third degree of retroversion and two months pregnant. Of the two cases reported in full, Case VII was pregnancy of three

months' developing in the incarcerated right cornu of the retroflexed uterus. In this and in the following case it was necessary to give ether to make clear the diagnosis and to replace the uterus. Case VIII was a retroflexed and incarcerated uterus four and a half months pregnant, with prolapse of the cervix at the vulva, and an ovarian cyst the size of a cocoanut. It was treated by bimanual replacement of the uterus and by ovariectomy, with the result of an uneventful convalescence and a living child at term.

CASE I.—S. B., twenty-seven, married eighteen months, sterile. First seen June 1, 1891. Complained of vomiting every morning, and weakness for two months. Last catamenia March 20th. Diagnosis: retroversion, third degree; pregnancy, two months. The uterus was replaced by means of traction on the cervix with a tenaculum, and pressure on the fundus with a finger in the rectum. June 4th, a Thomas soft-rubber retroversion pessary was fitted. July 16th, the uterus was high up in the pelvis, and the pessary was removed.

CASE II.—L. C., twenty-five, married eight months, sterile. First seen May 19, 1892. Last catamenia May 5th. Diagnosis: retroversion, uterus somewhat enlarged. She was

packed for fourteen treatments, twice a week. Vomiting of pregnancy began June 1st, and continued. July 18th, there was no question as to diagnosis of pregnancy. August 11th, the vomiting had ceased, and the uterus was so high in the pelvis that no support was necessary.

CASE III.—A. O., thirty-two, married twelve years: one child, two and a half years old; no abortions. First seen March 12, 1894. Catamenia irregular for the last two months: constant pain in the right inguinal region for the last week. Catamenia always regular until two months ago, and since then has flowed one day about every week. Diagnosis: retroversion, third degree; pregnancy, two months. The fundus uteri was replaced bimanually. March 19th, the uterus was again replaced, with the patient in the knee-chest position, and a Thomas soft-rubber retroversion pessary fitted. Patient not seen again.

CASE IV.—A. E., twenty-one, single. First seen March 15, 1894. No catamenia for two months: morning sickness and pain in the breasts. All the signs of pregnancy. Diagnosis: retroversion, third degree; pregnancy, two months. Not treated.

CASE V.—A. C., thirty-eight, married fourteen years; six children, the youngest four; two abortions. First seen May 23, 1890. Last catamenia, February 8th. Complained of difficult micturition and pain in the small of the back for two months. Diagnosis: retroversion and incarceration of uterus; three and a half months pregnant; lacerated cervix; cystocele and rectocele. The cervix was high up under the pubic arch, and the fundus jammed in the hollow of the sacrum. With the patient in the knee-chest position the uterus was replaced. April 28, 1891, she reported that she had carried the

child to term, and that it had been removed dead (by version probably). The uterus was in good position.

March 17, 1893, she again came under observation. The uterus was then in the third degree of retroversion and two months pregnant. It was treated by replacement and packing for six treatments, and then it remained in place without artificial support.

CASE VI.—K. McC., twenty-eight, married seven weeks, sterile. First seen Dec. 6, 1894. Backache for a year, associated with dyspepsia and constipation. Leucorrhea. Catamenia regular, of four to five days' duration, using six to eight napkins but accompanied by increased backache. Last catamenia October 26, 1894. In November flowed slightly one day. Backache very bad since marriage, also almost constant nausea and indigestion. Pains in stomach and breasts. Unable to work. Diagnosis: retroversion, axis of vagina: pelvic inflammation; cervix long and soft; uterus large, immovable and tender; breasts, suspicious of pregnancy.

She was treated by light packing with ichthyol and glycerine cotton for five treatments. Pain somewhat relieved by bromide. December 31st, the uterus being free from adhesions and having increased in size to that of two months' pregnancy, it was replaced by traction on the cervix with a tenaculum and lifting the fundus out of the hollow of the sacrum with a finger in the rectum. A little bimanual manipulation then restored it to a normal position. Cervix very soft. Discoloration of vagina. No question as to diagnosis. The uterus being so large, it was thought that there was little danger of its becoming reincarcerated and no pessary or packing was used.

January 3d, she returned and the

uterus was again wedged in the pelvis in retroversion. It was again replaced, the patient being in the knee-chest position, and an Albert Smith retroflexion pessary placed. She is now wearing the pessary with comfort, and the uterus is in good position. She has been partially relieved of her nausea.

CASE VII. — M. X., twenty-six, wife of a physician, married three months. First seen November 23, 1893. Last catamenia September 8th. Catamenia usually regular and painless. Suffered with severe pain in left ovarian region on September 29th, after getting her feet wet. Nausea and vomiting began the latter part of October, and had persisted with great severity up to the time when I saw her. Early in November, after she had been vomiting persistently for ten days and was losing flesh and strength very rapidly, her husband introduced a bougie four inches into the uterus, and left it there over night. Next day he put in another. As a result, there was some flowing (one napkin) for a day, and relief from the symptoms for a week. A week before my visit the vomiting began again with renewed force. She could keep nothing on her stomach, vomited froth and bile every few moments, had lost fifteen pounds in weight and was becoming very weak.

Dr. X. made use of a large number of drugs without much avail. Morphine and bromide controlled the vomiting for a short time, but were poorly tolerated. November 21st, he dilated the cervix with a Palmer dilator to a one-inch spread of the blades. Since then there had been slight flowing, but no relief of the symptoms. The urine was negative. Temperature 100°.

When I saw Mrs. X., two days later in consultation, I found a tall,

well-developed, dark-complexioned woman of a neurotic type. The abdominal walls were reasonably lax, so that the bimanual examination was as satisfactory as is usual in nulliparae who are not too fat. There was some mucus and blood in the vagina. The uterus, which was enlarged to the size of three months' pregnancy, was retroflexed in the second degree and immovable. In the cul-de-sac to the right there was a mass the size of a hen's egg, that I took to be a cystic right ovary, or an extra-uterine pregnancy. The cervix appeared to be very long and the os was patulous.

It seemed best to me to give an anæsthetic, in order to make a more thorough examination. Ether was given accordingly. With the aid of the anæsthetic I was able to determine that the mass in the cul-de-sac to the right was not the right ovary, nor the products of extra-uterine fetation, but the enlarged right horn of the uterus that had somehow become incarcerated in the bottom of the pelvis. After considerable vigorous bimanual manipulation, I succeeded in rocking the large horn by the promontory of the sacrum, and put the uterus into its proper position. Then it was possible to map out the asymmetrical uterus and also both ovaries normally placed and of normal size. Diagnosis: pregnancy at three months in cornu; retroflexion and incarceration. A half-grain suppository of morphine was put in the rectum, and the patient put to bed.

The relief from symptoms was marked. With the exception of a slight relapse to vomiting on November 30th and December 1st pregnancy was from this time uncomplicated; and Mrs. X. was delivered of a living girl baby, weighing five and three-quarters pounds on April 28.

1894. I saw Mrs. X. again August 31, 1894. The uterus was then symmetrical, in good position, and of normal size. Left ovary small. No evidence of rudimentary uterine horn.

CASE VIII. — D. H., twenty-six, married two years: one child, thirteen months: no abortions. First seen October 25, 1893. Had an attack of flowing in August, 1892, two weeks after her baby was born, and had not flowed since until she had a normal menstruation of five days, May 10, 1893. Was in labor five days: ether and forceps used: baby weighed ten pounds and a quarter: in bed three weeks after labor: nursed child. She noticed prolapse of the parts at the vulva as soon as she got up, and the condition persisted in spite of treatment by her doctor with packing and a ring pessary.

Early in September she thought she might be pregnant, being unable to eat her usual articles of diet, and having cravings as at her previous pregnancy. Accordingly she weaned her child. She noticed at this time that the womb came outside the body: and she suffered with dysuria and was unable to sit or walk with comfort. She also suffered from constipation and from pain above the pubes, that had been increasing in severity ever since. She complained chiefly of this pain when I saw her at the Carney Hospital, October 25, 1893. I found the cervix uteri enormously elongated, with as much as an inch and a half projecting from the vulva: deep laceration of the perineum: pelvis filled with a semi-solid tumor, apparently the retroflexed uterus about four and a half months pregnant. Above and on the right, lying on the pelvic brim, was a tumor of indefinite outline and the size of a cocoanut.

By forcible bimanual manipulation I was able to partially dislodge the

pelvic tumor, and the patient was kept in bed until six days later, October 31st, when she was given ether and a thorough examination made. Dr. F. W. Johnson kindly saw the case with me in consultation. We found the fundus uteri out of the pelvis, and the cervix high: and we also made out a cystic tumor apparently of the right ovary, the size of a cocoanut.

On account of the limited space in the abdomen, and the rapidly growing uterus, it seemed best to remove the cyst by abdominal section. Having allowed a sufficient time to elapse after the etherization to prevent all fear of miscarriage, I performed ovariectomy November 10, 1893. The patient made a normal convalescence, and was delivered of a living child March 23, 1894. I saw her and her child at my office May 9th, and the uterus was then in good axis but low in the pelvis, which was justo-minor a slight degree. I shall report the case in more detail at some future time.

In looking over the literature of the subject of retrodeviations of the pregnant uterus, I got the impression that the condition is of fairly common occurrence, and also that its early detection and treatment are of much more importance than one would be led to expect from the cursory manner in which the subject is treated by text-books.

The most recent and most complete work on this subject that I have found is an article by Dr. Sigmund Gottschalk, of Berlin, "*Zur Lehre von der Retroversio uteri gravidi.*" Gottschalk contrasts a statement made in the last edition of Schroeder's text-book, to the effect that retroversion of the pregnant uterus is seldom found, and that most cases right themselves during pregnancy, with a statement of Chrobak's that in his (Chrobak's) ex-

perceive the retroverted pregnant uterus only seldom rights itself, whereas the retro-flexed gravid uterus, in a vast majority of cases, does not right itself at all.

Gottschalk makes a strong plea for the distinction of retroversion from retroflexion, and sides with Chrobak in his views as to the spontaneous righting. He thinks that it is only those uteri that were retroverted before becoming pregnant that we can expect to right themselves, and with them there is much doubt. Those becoming retroverted or flexed during pregnancy have a much more unfavorable prognosis.

To show the gravity of the condition he collected sixty-seven cases of death due to retrodeviation of the pregnant uterus; the cause of death including uremia and exhaustion, gangrene of the bladder, tearing of the bladder, peritonitis in consequence of gangrene of the bowel, and occlusion of the bowel from torsion of the uterus on its axis.

I have found a case of hemichorea in pregnancy caused by acute retroflexion of the gravid uterus, the chorea disappearing on the replacement of the uterus. Also, a case of pregnancy in a retroverted uterus, with distension of the bladder and sloughing of the vesical mucous membrane, in which the patient miscarried at five months; recovery.

W. S. Stewart reported before the International Medical Congress at Washington, in 1887, the history of a case of retroflexed pregnant uterus, first seen when two and a half months along, which was allowed to go to term. The uterus was replaced during labor; after the os was dilated it fell back, but was again replaced, and the woman was finally delivered of a living child, and made a good recovery.

This case is to be contrasted with

one reported by Wenning, of dextrotorsion of the pregnant uterus simulating extra-uterine pregnancy, in which he did celiotomy at the sixth month, and the patient aborted and died of sepsis; and also with a case reported by Gottschalk, where there was acute obstruction of the bowels due to a retroflexed pregnant uterus at four months. He performed celiotomy when the patient was practically moribund, and she died in twelve hours.

It is plain to my mind that retrodeviation is a complication of pregnancy that is very likely to endanger the mother's health, or even her life; and the earlier in pregnancy it is diagnosed and treated, the better the prognosis.

As to treatment, one must distinguish clinically between the retrodeviation (1) *non-incarcerated*, and the uterus that has grown so large that the fundus cannot rise by the promontory of the sacrum, or the *incarcerated*.

As to the first class, it is admitted that a retroverted and pregnant uterus, although firmly adherent, may rise up into the pelvis without artificial aid, such is the softening effect of pregnancy on adhesions. That is to say, it is possible it may not enter Class 2. It is seldom that the attending physician is able to diagnose a retrodeviation occurring during pregnancy from one originating before pregnancy. When seen in the early months, especially when adhesions are present, the presumption is that the malposition antedates the pregnancy. Such a distinction is, to my mind, of no importance as far as treatment is concerned.

I contend that it is safer and that the danger of abortion is less, to treat all retroverted pregnant uteri as soon as diagnosed, with packing and pessaries until such time as the organ

has become so large that it cannot fall backward into the pelvis. This will be between the third and fourth month.

I think that there is a belief in the profession that pregnant uteri should not be treated by vaginal packing, and that packing the vagina causes abortion. This I believe to be erroneous. Certainly such treatment did not cause abortion in the cases I have reported. When the uterus is replaceable and has been replaced, it should be held in the normal position by a suitably-fitted pessary. It is well to leave out packing during the times that would be the menstrual periods.

As regards Class 2, the incarcerated uteri, the treatment is to dislodge the fundus and put it in its proper position as soon as possible. To this end ether may be necessary, although in a majority of cases the replacement is readily performed by placing the patient on her back with knees drawn up, seizing the cervix with a tenaculum and pulling downward on this, and at the same time pushing the fundus up with one or two fingers in the rectum.

When the fundus is emerging from the pelvis, I let go with the tenaculum and pushing the cervix backward with a finger in the vagina, massage the fundus forward, with my other hand on the abdomen. When this method proves unsuccessful, I put the patient in the knee-chest position and repeat the procedure.

In Case VIII, which exhibited a most unusual combination of pathological conditions, the uterus was so large, being four and a half months pregnant, that very forcible manipulation succeeded in only partially dislodging the fundus. Several days later, however, it was found in its proper position.

The small size of the child in this

case is of interest. It seems probable that the surgical interference and the cutting off of the ovarian artery on one side was accountable in a measure for this. It is safe to say that had the case been allowed to take its course without surgical aid, she would either have aborted or had a difficult labor.

In Case VII, it occurs to one as strange that the introduction of two bougies four inches in the uterine cavity and subsequent dilatation of the cervix did not produce abortion. The explanation is found in the fact that the products of conception were located in the uterine horn and were not reached by the bougies.

Cases VII and VIII are striking instances of the great tolerance of the pregnant uterus; and their happy outcome, as well as the results of my investigation of the literature of the subject, confirm me in my belief that all retrodeviations of the pregnant uterus should be treated by replacement as soon as diagnosticated.

Symptoms of exaggerated backache, dysuria, intractable nausea and vomiting, or pelvic pains occurring during early pregnancy, should lead at once to a bimanual examination, and the physician should satisfy himself that the uterus is in proper position.—*Boston Medical and Surgical Journal*, April 18, 1895.

VAGINAL HYSTERECTOMY FOR PELVIC SUPPURATION. By EDGAR GARCEAU, M. D.

In an old edition of Thomas's work on gynæcology, the following sentence occurs: "A guarded prognosis should always be made as to the time of recovery in pelvic cellulitis, for no amount of experience can foresee the course of the affection; whether the effused *liquor sanguinis* will disappear by absorption in three weeks;

whether the discharge of one abscess will end the patient's suffering; or whether a chronic induration will exist a great length of time."

The pathology of pelvic suppuration has undergone some modifications since this was written, but the prognosis, unfortunately, remains practically the same. Many women have the so-called "chronic induration," which makes them confirmed invalids, and in many instances bed-ridden. Various operations have been devised for their relief, and various treatments. Perhaps no branch of gynæcology has received more careful attention than the one we are now considering. It has been made the subject of dispute and is now far from settled. What one surgeon approves of and practices, another derides and condemns, and yet the results of each may be the same. Under these circumstances it is apparent that any new method of dealing with this class of cases must of necessity be open to severe criticism before it is generally adopted. If to this is added the fact that such a method is attended with great technical difficulties the criticism becomes the more severe, and frequently it is condemned before it is even tried. Such has been the case with vaginal hysterectomy for pelvic suppuration. Inaugurated in France by Péan in 1886, it was received with opposition by the French surgeons, and it was only after repeated proofs of the efficacy of the method that it finally gained a foothold in Paris. At the present time it is the method of choice in cases of long-standing severe inflammatory disease of the appendages. The key-note of the operation is one word—drainage—good, free, unobstructed, surgical drainage. The abdominal route has been studied to the point of exhaustion. It was entirely overlooked that the vaginal

route was the logical one, and why? Simply because it had never occurred to anybody to remove the uterus, which was in the way, so that there should be a large, unobstructed highway down which the pus could flow. So much care has been bestowed upon the appendages that the uterus escaped its share of attention. Not only is the uterus a mechanical obstruction in pelvic suppuration, but it also may be a constant source of future danger to the woman by reason of germs which it may contain, and which may excite active inflammation at a subsequent period. Many a woman has been celiotomized over and over again for inflammatory trouble of the appendages without relief. Dr. Pryor of New York told me of a case in which celiotomy had been done seventeen times by various surgeons.

Jacobs' summing up of the operation and its indications is as follows: "Let us now review the indications for vaginal hysterectomy, beginning with the most difficult cases of suppuration complicated with adhesions. There is pus in the dilated tubes, in the ovaries, in the adjacent cellular tissue. The uterus is fixed, and the coils of intestines are glued together above these lesions like a solid roof. In such a case celiotomy displays the adhesions, which cannot be separated without opening the bowels, with a chance that we may reach the purulent focus limited by them, open, empty and drain it; and the result may be that the woman will slowly recover, or that she will have an intractable fistula. Often we are confronted by a similar condition in which the pelvis is occupied by adhesions, in the middle of which the uterus is imprisoned, and yet without the presence of purulent foci. In such cases, owing to fear of accident, the surgeon is induced to relinquish

the operation as an exploratory incision. It is, of course, always possible to finish the operation, but we have to consider the life of our patient. In just these cases vaginal hysterectomy gives results little short of marvelous—not wholly without danger, but with a security far greater than the abdominal. The collections of pus are opened into the vagina without infecting the peritoneal cavity; the adhesions are severed if possible, but should the finger encounter too great resistance they are abandoned and in a few days they will soften and become absorbed. In pelvic suppuration, and with extensive complicated adhesions, both equally formidable for the cœliotomist, vaginal hysterectomy is triumphant.

Recently it has been the practice of many surgeons to remove the uterine as well as the appendages at their cœliotomies for suppurative disease, and the reason was because they found that their patients did not all get well when they removed only the appendages. Pathologic changes of the uterus certainly demand as much attention as those of the appendages. Possibly the reason they have been overlooked heretofore is the difficulty of recognizing their presence. A uterus affected with metritis, and not giving rise to any enlargement, is difficult of diagnosis. In comparatively simple cases the uterus and the appendages can be removed by the abdominal route very much more easily, and perhaps very much more quickly, than by the vaginal route; but to compensate for these advantages the degree of shock attending the vaginal operation is insignificant; added to this is the fact there is no possibility of subsequent ventral hernia which makes the life of the patient so uncomfortable. In the operation of vaginal

hysterectomy, the bowels are neither seen nor touched until the end. Special emphasis must be made in regard to the lesser degree of shock: it is one of the strongest arguments in favor of the operation.

In those cases in which pelvic suppuration is complicated with rectal, vesical or intestinal fistula, vaginal hysterectomy is the operation of choice. A cœliotomy under such circumstances is always dangerous: but by the vaginal method the peritoneum is not soiled; the discharges flow down a natural incline, and the fistula closes by itself. The conditions are favorable for such a result, the healing being aided by cicatricial contraction of the pelvic contents *en masse*. It is rare that a secondary operation is needed. How great this cicatricial contraction is, may be inferred by the fact that in one of Ségond's cases, in which all the feces were passed *per vaginam*, complete closure of the fistula occurred spontaneously after a vaginal hysterectomy. But perhaps the most wonderful result of vaginal hysterectomy is the immediate disappearance of the inflammatory masses. There is no doubt whatever about this. The explanation is probably to be found in the excellent drainage and in the removal of the cause. There is no reason why cicatrization should be any different from that in any other part of the body. An almost analogous condition is to be found in appendicitis. Before operative methods were in vogue in treating this disease, its frequent recurrence was its most distressing feature; the appendix removed, the patient got well. Whether or not leaving behind the appendages, or parts of them, influences the final result is perhaps at present unsettled; in most instances, however, it is feasible to remove them with the uterus.

And now a word in regard to the objections to the operation. It has been contended that it is unsurgical, that it is brutal, that it is blind, and that it is unsafe. Furthermore, it has been contended that hæmorrhage is likely to occur during the operation: that the uterus and the viscera may be wounded. In regard to the first of these objections, it is not necessary to say much. They have been raised by men who know but little about it, and who have never seen it done properly. To see a skillful surgeon perform the operation is a pleasure. The steps are carefully followed: there is no embarrassment: there is no hæmorrhage: and the operator sees exactly what he is doing at each step. The fundamental principle of the operation is never to work at haphazard. It is not a blind operation. If the operator has a hæmorrhage it is his fault: if he makes a misstep he is lost, and he must be a skillful man if he would recover himself. The laws which govern the procedures must be as rigidly followed as an algebraic formula, otherwise there is no security against mishap. Heretofore, the operation of vaginal hysterectomy has been to get the uterus out in the best and quickest way possible, each individual operator having perhaps his own method, there being no special rules laid down, beyond the incision of the vaginal attachments and the securing of the broad ligaments. No one before Pëan attempted to remove the uterus piecemeal, although the simplicity of the thing is evident on reflection.

In regard to wounding the bladder or rectum, it may be said that this occurs not more often than in cœliotomy with a skillful operator, probably not as often. Sègond has done the operation 400 times and he never lost a patient from hæmorrhage. He

opened the bladder three times: the wound was sutured at once and recovery followed. Nine times the rectum was opened; three times it was accidental, six times there was a pre-existing fistula: of these, two died several months after the operation from pulmonary tuberculosis; a third still had a small fistula, but it was a recent case: the other six recovered spontaneously without interference, notably the case already cited of the woman who passed all her feces *per vaginam* before the operation. Sègond in all his 400 cases never clamped the ureter once. He uses a special incision for the vagina, which gives more room and at the same time allows the ureter to slip away from the bite of the forceps. The viscera cannot be injured if the retractors of the Pëan model are used. They are long, flat blades which raise the bladder and rectum away from the cutting instruments, and if properly used are an absolute safeguard against accident.

Statistics are unsatisfactory and to many they are no proof; yet in what other way shall we judge the merits of a new method? Jacobs' are among the best. He has done the operation of vaginal hysterectomy for double inflammatory diseases of the appendages 166 times; he had 162 recoveries and 4 deaths—a mortality of 2.4 per cent. On analysis we find that in 113 there were double purulent collections: of these 111 recovered and 2 died—a mortality of 1.8 per cent. The bladder was perforated twice, the intestines once; the opening was closed and no fistula resulted. In ninety-eight of these recoveries the patient was followed for a period varying from one to four years: eighty-eight were absolute cures; of the others a few suffered somewhat from vesical disturbances due to adhesions, and a few from

pelvic pain; a few were not relieved at all.

Péan's results are even better. His first 150 cases all recovered with but one exception: she was moribund at the time of the operation. But perhaps the most instructive cases are those of Landan's. He always does celiotomy when there appears to be a chance of succeeding, reserving the more difficult operation of vaginal hysterectomy for those cases of suppurative disease which, if attacked by the abdominal route, would prove perilous to the patient. "These are cases complicated with rupture of the tube into the bladder, rectum, or intestine; reference also is made to multiple abscesses which are intra- or extra-peritoneal." He has done thirty cases of this sort without a single death. It is questionable if statistics of celiotomy can compare favorably with these.

In a short paper of this kind anything but a brief description of the operation is impossible. In the first place, a word about clamps. In a case of adherent uterine tubes they must be used; ligatures will not do on account of the impossibility of securing them properly beyond a certain depth in the vagina. But in cases in which the uterus is low down, for instance a retroversion with disease of both ovaries requiring removal, ligature holds the preference because of the greater comfort to the patient. Dr. E. W. Cushing of Boston has devised a method of ligating the broad ligament which I would like to refer to here because of its neatness, and because it avoids entirely a sloughing stump in the vagina. After amputating the uterus, which in a simple case can be done in a few minutes, he draws down the broad ligament of one side into the vault of the vagina. Then he passes his needle through the upper edge of the vaginal

incision near the outer angle, and then encircles the uterine artery, which has been temporarily held by a clamp: he then finishes the stitch by emerging at the lower edge of the vaginal incision. The uterine artery is thus firmly ligated, and at the same time the ligature closes over the stump of the broad ligament by approximating the lower and upper edges of the vaginal incisions. The rest of the broad ligament is secured in the same way, on each side, by additional ligatures, two or three more being required. The ovarian artery is ligated separately. By this means the vault of the vagina is closed with the exception of a small hole through which a piece of iodoform gauze is thrust for drainage. Necessarily this method is applicable only to those cases in which there is no pus. In cases in which the uterus is adherent and high up, and in which there may be pus on one or both sides, the following method of operating is the one to be adopted:

Briefly it may be described as having three stages; 1, the removal of the inferior segment of the uterus; 2, removal by morcellation of the anterior wall of the uterus; and 3, eversion anteriorly of the stump.

The patient lying on the back, four retractors are put in position, one on each side, and one anteriorly and posteriorly. The cervix is now seized with a bullet forceps and a circular incision is made around the cervix: an additional incision is made on each side parallel to the lower border of the broad ligament, two-thirds of an inch long; it gives more room and protects the ureter. Directly the incision is made, the top of the anterior retractor is forced into the wound and pulled upward and backward along the cervix. The sectioned tissue yields a good deal—surprisingly so in fact—and it is just

this manœuvre that makes the Péan instrument of so great value. While the retractor is pulling back the tissue, blunt-pointed, curved scissors separate by short snips the attachments between the bladder and uterus: with each snip of the scissors the retractor takes a fresh hold, being introduced into the part just cut by the scissors. The finger will sometimes help a great deal in the dissection. Having separated as much as possible in front, the same should be done behind. The forefinger of the left hand is now placed on the anterior surface of the cervix and glides along outward toward the base of the broad ligament; it penetrates between the anterior peritoneal fold and the ligament proper and pushes aside the ureter. The same is done behind. Then two fingers grasp the broad ligament and serve as guides to the first forceps, which seizes the ligament at least an inch from its lower border. The ligament is then cut the whole length of the forceps close to the uterus: the same is done on the other side. The cervix is now split transversely from side to side up to the point of the forceps: two flaps are thus made, an anterior and a posterior. The posterior flap is now amputated and strong forceps seizes the anterior flap and pulls it downward; the uterus begins to roll anteriorly, thanks to the void which has been created behind by the amputation of the posterior flap. At the same time fresh separation is effected between the uterus and the bladder. The anterior flap is then amputated. If the uterus is not very adherent it may be possible to make two more flaps which are amputated in the same way after preliminary hemostasis of the broad ligament. But if the uterus is very adherent, the rest of the operation deals with the anterior wall of the organ. Placing a bullet

forceps on each side of the canal, the stump is pulled down as much as possible and separation effected between bladder and uterus. After separating as much as feasible, the anterior uterine wall is morcellated in the median line in small pieces. The part removed should include all the tissue down to the uterine cavity. Two more bullet forceps are now inserted on the upper parts of the edges of the excavation: renewed transaction is made, more denudation effected and morcellation carried higher up. By repeating the process the peritoneal cavity is reached. The uterus may now be hooked with the finger and everted anteriorly with ease. It is a simple matter to clamp the rest of the broad ligament and to remove the organ. In many instances the appendages are dragged into the vagina and are clamped separately.

If, during the operation, a *pus sac* has been opened, the operator waits until the flow ceases, then washes out the cavity and proceeds exactly as before. But if it has not been opened, it must be searched for with the finger, for, if undiscovered, it will cause further trouble.

When it is possible to remove the appendages it is proper to do so; otherwise they may remain behind and in the majority of cases will cause no trouble.

The dressing consists of iodoform gauze placed above the tips of the forceps and between them and the vaginal walls. The forceps are removed in forty-eight hours; the gauze not until the sixth day. Pain is controlled with morphine, and in three weeks the patient is up.

The following case which came under my notice is typically illustrative of the sort of patient that is cured by vaginal hysterectomy.

M. J., twenty-nine, two-para, was admitted to the Broca Hospital, Aug

12, 1894. Ever since her last confinement, three years before, she had been suffering from inflammatory pelvic trouble which had confined her to bed most of the time. The longest period of quiescence was three months; the rest of the time she had been practically bedridden from pain and prostration. She had had four attacks of pelvic peritonitis which were severe, the last one eight days before entering the hospital. Examination showed a uterus which was fixed, immovable, and surrounded by inflammatory adhesions: on the right, a mass the size of a good-sized fist filling the pelvis and impinging on the rectum; on the left, a smaller mass. Vaginal hysterectomy was done by Pozzi's first assistant, Dr. F. Jayle. No pus was found. There was no shock to speak of, although the operation lasted over an hour. In three weeks the patient was completely well, suffering no pain and walking about.

I examined the women before the operation and easily made out the large masses: when I examined her again three weeks after the operation, I was astounded to find that on the left side almost nothing remained, and that on the right side there was only a mass the size of a small hen's egg. She told me that she was perfectly well and she looked so, and yet both ovaries and tubes remained behind.

I cannot refrain, in conclusion, from referring briefly to the further scope of the vaginal route in dealing with pelvic diseases. In the pre-antiseptic days it was the only route, and the impunity with which ovaries could be removed through an incision in Douglas' pouch served to put Battey's operation on a sound basis. Not only were ovaries of normal size removed in this way, but also tumors of considerable size. Dr. W. H.

Baker of Boston assures me that before the cœliotomy period he had several times removed a dermoid or other cyst of the ovary through an incision behind the uterus. Perhaps the most prominent advocate of the vaginal route in this country is Dr. Polk of New York. It was a pleasure, a few weeks ago, to see him operate on a woman who had a cyst of the right ovary the size of a hen's egg. Her left ovary had been removed some time previously by cœliotomy and she was much averse to having her abdomen opened again. Most women would be. An incision was made in the posterior vaginal wall close to the uterus, and the peritoneal cavity was soon reached. By means of two large retractors, made after the Ségond model, the operative field was clearly exposed and the cyst brought into view. A few adhesions were readily freed with the finger and the cyst aspirated. The sac was then grasped with a fenestrated forceps and removed. It proved to be a cyst of only a portion of the ovary. Enough of the ovary was left behind to assure the continuance of the catamenial flow. A bit of gauze was thrust into the wound and the patient put to bed. The operation took perhaps fifteen minutes to perform.

Dr. Polk told me that he treats extra-uterine pregnancy in the same way. He never fears hæmorrhage, for it is a simple matter to clamp the ovarian artery which supplies the sac. His method is to introduce his forceps along the finger as a guide: to pierce the middle of the broad ligament with one jaw of the forceps, while at the same time the forefinger seeks the top of the broad ligament and protects the intestines, preventing them from being caught in the forceps. The clots may now be turned out at leisure and the cavity washed out. There is no shock to speak of.

In the same way, Jacobs of Brussels has removed a very large ovarian cyst, tapping it through the vagina and tying the pedicle, very much as in a cœliotomy. Fibroid tumors of the uterus can safely be removed through the vagina. Here the laws of morcellation as set down by Péan must be closely followed, otherwise the operator will be disappointed in his results. A skillful operator has a mortality of almost nothing. It has been shown that fibroids reaching even to the umbilicus may be safely removed by this method. The mortality in 400 cases of fibroids of all sizes was 1.7 per cent.

From these facts it seems as though in the near future, there must be fewer cœliotomies and more vaginal work. The technical difficulties encountered in performing operations through the vagina will perhaps delay the adoption of the method for a time at least, but as the experience of those who are firmly convinced that it is the route of choice in selected cases accumulates, the vaginal route will become more and more popular, and will finally be assigned the place which rightfully belongs to it.

PREPARATION OF THE PATIENT FOR CELIOTOMY. By WALTER B. CHASE, M. D.

Other things being equal, in cœliotomy the results will be best in the patient who has been best prepared for the operation. In elective operations, this preparation should always be had. In emergency cases, time and necessity may both forbid its observance.

No matter how unexceptional the surroundings of the patient, how sound the judgment, how perfect the skill, how exact the technique of the operator—if care in the preparation

of the patient, to the minutest detail, be neglected, the results are thereby put in jeopardy. The éclat of a brilliant operation has too often been lost in the light of an autopsy, which revealed an unrecognized disease of the kidneys, a dilated ventricle, or atheromatous degeneration of the circulatory vessels. The dangers which lurk unseen must vigorously be inquired after, otherwise what should apparently result in success may end in humiliating disaster. It is with hope of eliciting greater interest on the part of abdominal surgeons that I here urge more careful inquiry into the condition of the patient who is to undergo an operation, involving an issue, it may be, of life itself. In the main, the suggestions I have to offer are applicable to most capital operations, and all operations in which anesthetics are administered. If the patient is in good general condition, the need of carrying the examination to a point of great nicety is apparently not necessary, but the surgeon who insists on this thorough investigation in every case will have no reason to regret it.

While I have had anesthetics given to many hundred cases without any accident, I have adopted the rule never to administer ether or chloroform for surgical cases without investigation, except in cases of emergency. I am admonished to pursue this course by the number of serious accidents which have occurred in the practice of others.

To arrive at a proper knowledge of a patient about to undergo a cœliotomy, the investigation should involve a general physical examination of the patient not only, but a special and exhaustive inquiry as to the size, condition, and function of all the organs of the thoracic, abdominal, and pelvic cavities, together with the knowledge

of the state of the nervous system, the function of digestion, and the state of bodily nutrition.

Special attention should be given to the great organ of circulation. Is the heart normal in size and position, sound in structure and healthy in function? Have its walls undergone fatty or atheromatous degeneration? Have the blood-vessels lost their natural strength and resiliency? Is the renal function properly performed?—answer to these inquiries bears a certain relation to cardiac conditions, and those vasomotor influences presided over by the sympathetic nervous system. A certainty as to renal health or disease can only be arrived at by a quantitative and quantitative test of the urine. Both from the physiological and pathological standpoint, the most important ultimate fact is the amount of urea excreted per diem. The ordinary standard of adult life requires a daily excretion of urea of about five hundred grains. No examination of a specimen of urine from any patient is conclusive, though it may give light as to renal health. Without going into minute detail, it may be said that the entire urine for three successive days should be carefully measured, and its reaction noted, that all of the urine of the third day should be put together and kept in a cool place, to prevent decomposition, and from this a sample should be taken for the analysis. Absence of albumin, associated with low specific gravity, is not proof of a healthy kidney, for this condition is usually present in contracted kidney and general arteriosclerosis; so, too, the occasional presence of albumin, apart from other chemical and microscopical conditions, has no special significance. Exhaustive, quantitative and qualitative tests, repeated, it may be, will furnish the only safe data on which to base

sound judgment. The condition of the digestion is important, especially when the patient's health is greatly impaired and vitality low, whether from the condition requiring surgical interference or otherwise. In the presence of septicemia, arising from disease of the pelvic or abdominal organs, the condition may require free catharsis by the use of salines. So, too, pelvic inflammations may require treatment before coeliotomy is indicated or even permissible.

Unless necessity hurries the procedure, time should be taken to improve the nutrition and strengthen the system by appropriate hygienic measures, tonics, and stimulants. In conditions where active exercise cannot be taken, massage may be of value. In patients who suffer from atonic dyspepsia, associated with flatulency, special care should be had to correct the digestion. Among the remedies most effectual are strychnine, pure pepsin, and charcoal. If the fermentative process persists, the use of salol and camphor is beneficial. Always ascertain whether this state of affairs is due to pressure of intra-abdominal growths upon the stomach and intestines, to general systemic impairment, slow sepsis, or whether it is a result of excessive tea and coffee drinking.

When the investigation has been carried to this point, the surgeon will appreciate the real condition of the patient, and can intelligently decide whether, in the presence of either comparatively mild or grave disease, resort should be had to operate. Disease of the heart and kidneys, unless of an advanced and serious nature, may not be sufficient to deter the operator from giving the patient the benefit of the operation, even though the results are in doubt; especially is this true when it is evident that the patient must succumb to the existing disease unless operation be had. There

are other facts which have so important a bearing on the propriety of operating when the patient has serious renal, cardiac, or other organic disease, that they should not be lost sight of. One is that of heredity. *Cæteris paribus*, the patient who has inherited longevity on his or her side, is far more likely to survive the ordeal of a serious operation than one who comes from a short-lived ancestry, and should have due weight when calmly considering the reasons for and against taking long risks. So, too, the added risks of alcoholics and beer-drinkers enters into the solution of such a problem. Another factor which is liable to be overlooked is that of specific disease. Did the patient ever have syphilis? Again, a patient who has survived one or more dangerous attacks of acute sickness, or has undergone severe injury or grave surgical operation, followed by perfect recovery, has demonstrated a power of vital resistance which vastly increases the prospects of recovery after cœliotomy.

These facts should be frankly disclosed to the patient or friends in determining the course of action. Then no criticism can attach to the surgeon, even though the results are other than those hoped for. Having decided these points, attention must now be had to the more immediate preparation of the patient for the operation. No food should be taken for at least twelve hours before an operation, and reasons may be present why the period should be longer. Sufficient time should elapse after the last ingestion of food to allow for a thorough evacuation of the bowels at a period of six hours before the operation. A reason for this is found in the physiological fact that fear and anxiety often suspend the function of digestion, and a patient who is laboring under the dread ordeal of an

operation will retain food in the stomach unchanged for hours, which is likely to induce vomiting while under the anæsthetic, greatly to the annoyance of the operator, and it may be detrimental to the result of the operation. Magnesium sulphate or castor oil may be given, as the case would indicate. If, as indicated previously, flatulence has been present, the use of charcoal (*ligno-animalis* is preferable) and pepsin should precede this for two or three days; too great importance cannot be attached to this procedure. In a recent case, in preparing a patient—who had suffered persistently from flatulent dyspepsia—for the removal of a large ovarian cyst, I was able, by following this method, to demonstrate its utility, so that no flatulence followed the operation. After this the patient should take nothing but pure hot water, up to the time of the operation, sufficient being administered to fully make up for any loss of the fluid elements of the blood, from the administration of the saline, and satisfy the desire of the patient. Be certain and rid the system of the presence of retained excreta. See that your patient is not lithemic. If the renal condition is not up to the normal standard, and diuretics are indicated, none is so valuable (except for the purpose of increasing or diminishing the blood pressure) as pure spring water. It is the eliminative par excellence. The three immediate causes of danger in cœliotomy are: hæmorrhage, shock, and the influence of the anæsthetic on the heart, the kidneys, and the lungs. The risk of the last two can, in some degree, be anticipated, before the operation, by proper preparation of the patient.

The danger of suppression of urine is manifestly less in sound than in diseased kidneys, and the knowledge already acquired in the case will

guide in the premises, greater or less risk being assumed according to the exigencies of the case, and the declared wish of the patient or family. Other things being equal, chloroform is safer in the presence of renal disease, and ether in cardiac disease. Shock, to a greater or less degree, is always unavoidably present. As a prevention to shock, the administration of one ounce or one and a half ounce of whisky in two ounces of hot water by ænema, an hour before the operation is indicated. If the operation promises to be difficult and prolonged, sparteine or strychnine hypodermically may be indicated, particularly if the heart is weak. If there is fatty or atheromatous degeneration of the heart, use no digitalis, but rely on strychnine. Morphine sulphate, one-eighth grain, thus used, is of great value in steadying the nervous system, and in some degree preventing shock; but unless the susceptibility of the patient is known to be favorable, it may induce vomiting after the operation is completed. A patient who is not suffering from any inflammatory condition of the pelvic or abdominal organs should be rigidly confined to bed, in a horizontal position, for at least twenty-four hours before a celiotomy, and if inflammation is present this should be increased to two or three days or a week, and an elevation of the foot of the bed should be made from four to twelve inches. On no account should a patient be allowed to assume an upright position, much less to walk to the operating table. Everything possible should be done to put the patient at perfect rest, physically and mentally. Remove every perturbing influence. Inspire the patient with your own hope and courage. Doubtless, in many instances, the finally determining factor, under such conditions, was the confidence of the patient in a

favorable result, and his or her determination to get well. Previous to celiotomy, the function of the skin should be stimulated by appropriate baths and friction, the last bath being taken the evening before the operation, given in bed by the nurse. After this, the cutaneous surface of the abdomen, including mons veneris and labia, should be thoroughly scrubbed with soap and water. Then the abdominal cutaneous surface should be covered with a towel, moistened in Thiersch's solution, and allowed to remain until just before the operation, when the skin should be drenched with ether to remove any fatty secretion, and thoroughly scrubbed with a 1 to 1000 bichloride solution, after which the integument should be washed with sterilized salt water to remove any excess of the sublimate. Just prior to the operation, the umbilicus should be covered with collodion, impregnated with iodoform, or by dropping into the cavity a few minims of iodine tincture.

At the time of washing and scrubbing the abdomen, the vulva and mons veneris should be similarly treated, and the hair closely shaven, and the same sterilization by bichloride solution followed.

In females, if the operation involves the pelvic cavity, the vagina should be thoroughly sterilized, and in some cases the cervix and uterus curetted, sterilized, and packed with iodoform gauze; for should drainage be necessary, the parts are properly prepared. If the operation is for hysterectomy, either vaginal or abdominal, curette the uterus, douch with bichloride solution, pack with iodoform gauze, and close the os with silk.

Sterilization of the vagina may be made as follows: First, douche the vagina copiously with a hot water so-

lution, to each pint of which has been added one dram of sodium bicarbonate, which will neutralize the acid secretion of the vagina; after this, a gauze sponge on holder is dipped in green soap, introduced into the vagina, and, with moderate pressure, to open all its rugosities, every portion of its surface is thoroughly scrubbed; then it is to be douched with a 1 to 2000 bichloride solution, finishing with hot sterilized water: usually it is best to empty the bladder before any abdominal operation, but in cases of supra-vaginal amputations, the presence of four or six ounces of fluid in the bladder aids in locating the relative position of the pelvic organs.

The most favorable time to operate is in the early morning, when the patient has had quiet sleep, and the vital forces are at the best. With such a preparation of the patient, the surgeon is in a position to do the best work and get the best results.

RECAPITULATION.

1. Thorough general examination of the patient—which should include an examination of the location and size of the organs contained in the thoracic, abdominal, and pelvic cavities, and of the function of digestion and excretion, and the condition of the nervous system.

2. Special examination of the kidneys, with qualitative and quantitative examination of the urine, repeated according to the necessities of the individual case. See that the system is not charged with urates. If diuretics are indicated, pure water is best.

3. Special examination of the heart and circulatory vessels for discovering the possible existence of valvular disease, hypertrophy, dilatation, or fatty or atheromatous degeneration.

4. No food should be taken for a period of twelve hours or longer preceding an operation, and following this a thorough evacuation of the alimentary canal, with salines or oil, at least six hours before the operation. Have the alimentary canal empty at the time of operation.

5. After this, nothing should be taken into the stomach except hot water, sufficient being given to supply the ordinary demands of the system, to allay thirst and make up for any loss of the watery elements of the blood occasioned by the saline. If purgation had been followed for purpose of relieving sepsis of pelvic or abdominal origin, the patient may not be in condition to take sufficient fluid to cover loss.

6. As the immediate dangers from cœliotomy are hæmorrhage, shock, and the influence of the anæsthetic, care should be had in the preparation of the patient to guard against shock and the danger from chloroform or ether. Shock may, in a degree, be prevented by administering alcoholic stimulants per rectum, previous to the operation, and by the hypodermatic use of strychnine, sparteine, or other special heart stimulants, as indicated. The risk from the anæsthetic will be diminished by special care and skill in the administrator, and by the knowledge already gained of the state of the heart and kidneys.

7. Rigid adherence to a horizontal position for a period of twenty-four to seventy-two hours, or longer, before the operation.

8. Thorough sterilization of the field of operation and of the vagina.

9. By general and special care to have the patient in the best physical and mental condition for the operation. (*American Medical Surgical Bulletin*, March 15, 1895.)

PROGNOSIS IN DISEASE OF THE
FEMALE PELVIC ORGANS. By
C. A. KIRLEY, M. D.

Prognosis is often a determining principle in the management of disease within the female pelvis. Not only does the probable result in a given case indicate the proper line of treatment, both before and after operation, but certain prognostic signs are of great value to aid in forming a correct judgment as to the propriety of communication between patient and friends, which may be necessary for religious consolation, or the final settlement of some important business matter.

While prognostics are mainly of consequence to the patient, self-protection should not entirely be lost sight of. In no department of medicine or surgery is the attendant more liable to censure, and often of the most malicious and unjust kind, and at a time too, when he is the least censurable. Operators of any considerable experience who have lost cases—and who of that class have not?—need not be reminded of his emotions on hearing of himself as a heartless savage, operating only because “he likes to cut.” Such censure, of course, comes from the ignorant and vicious, but it is no less unjust, when the most earnest effort has been made in their behalf. Good judgment in prognosis is the only defense in all such cases, and mya sometimes save the annoyance and expense of a lawsuit.

While it is unworthy the surgeon to withhold treatment, or to deny the patient whatever benefit there may be in an operation, still cases present themselves in which any radical measure is entirely unjustifiable. While some honestly take the position that a patient should have the

benefit of an operation, however desperate the chance, such practice is doubtful when applied to all cases. The condition in each case must be our guide. Given a case of acute general peritonitis, in which pus is present in the abdominal cavity—whether a result of the peritonitis, or whether originating from the escape of pus from a suppurating tube, ovary or appendix, in which the general condition is fair, and the patient is seen in good time,—abdominal section would be the only rational treatment; on the other hand, if the patient is seen later with a rapid pulse, subnormal temperature, an anxious countenance and great depression, such a procedure would, in the eyes of both men, seem irrational in the extreme.

The prognosis in the following case was so doubtful that operation certainly would have shortened life. All concerned were impressed with the necessity of as correct a diagnosis as possible, as well as with the danger in delay in all such cases:

Mrs. S., housewife, aged thirty-nine, married in 1879, mother of one child, now five years old; dark complexion; very much emaciated and anemic. She came under observation in September, 1893. Pulse, 100; temperature, 99. The abdomen was irregularly enlarged from a hard, movable tumor about the size of a small cocoanut, situated within the lower part of the abdominal cavity on the right side. The uterus was normal in position, partially movable, and the os was patulous and irregular. A troublesome cystocele was present, and the perineum was lacerated through both rectal sphincters. The urine was normal. Thirst and flatulence were quite troublesome symptoms; bowels regular; appetite poor. Headache was severe at times; the right arm paralyzed, and pain was

very severe in the shoulders, arms and legs. Respiratory organs were normal.

The family history did not show any hereditary influence, and her health had been good until present illness began about a year ago. The tumor was discovered about six months ago, when her physician thought her pregnant. She had supposed she felt quickening. The tumor was evidently fibrous in character, but whether it sprang from the right uterine wall or whether it was a degenerated ovary could not be determined. She remained at the hospital about three weeks, leaving it in no better condition than when she was admitted. When a tumor was diagnosticated, and she was informed of the only treatment in such cases, she absolutely refused to submit to an operation, and did not consent until she became so ill that she was indifferent as to the result.

When a patient has reached this point, the prognosis is doubtful as a rule. The patient died within about three weeks after leaving the hospital.

Fatal results always become more generally known than successful results, and as the news spreads it is attended with the usual censure and criticism of the operator.

The exacting public make no allowance for the desperate chances taken. Some one has said—Polk, I think—that nothing is ever gained by operating on the dying. Not only are the results a discredit to surgery, but many, whose life might be saved, are persuaded that their chances to live are better without operation. More lives would be saved in calming public fear of operation, by declining to operate in cases in which the prognosis is almost hopeless.

Treatment in the following case is in contrast with the foregoing—the result alike disastrous:

Mrs. B., aged twenty-four, married in 1889, anemic and very much emaciated, was admitted to Rofinwood Hospital for Women, April 22, 1894. Five weeks previously she had been seen in consultation with her then attending physician, Dr. Gifford, under whose care she had but recently come. *Though she had been treated for "gastric catarrh" since June, 1893.* Dr. Gifford had correctly diagnosticated ovarian abscess. She was also suffering from a second attack of acute general peritonitis. Her condition was perilous in the extreme. Pulse, 140 to 150; temperature, 104; abdomen tender and tympanitic; anxious countenance, and occasional vomiting. Notwithstanding these unfavorable symptoms, she sufficiently recovered to be removed to the hospital, as stated. Temperature at this time, 101; pulse, 130; and though the general condition had improved, yet it was not good. The uterus was only slightly movable, and its situation within the pelvis normal. The menses began at eleven years, have been deficient since her marriage, irregular, and very painful for the last three or four months, and a constant purulent leucorrhea has been present since her illness began. The urinary, digestive and respiratory organs were normal. She had been sleeping well of late, and was cheerful and hopeful. No heredity. She had never been ill, except from the diseases of childhood, until the present illness began, in June, 1893.

From the clinical history, it will be seen that the prognosis was exceedingly doubtful, still the general condition alone would hardly contraindicate an operation. Sepsis from the long-continued existence of pus, a very weak heart, and a previous puncture through the vagina were the doubtful prognostic points. Notwithstanding this, and the probability of

acute general peritonitis at any time, from which she would surely die, abdominal section was determined upon, and therefore performed, April 24, 1894. Double ovarian abscess was encountered, and though adhesions were universal, they were easily separated, and both abscesses were removed without rupture of their walls.

The operation was not a prolonged one. One abscess was larger than the other, and they together contained 20 ounces of pus.

The patient rallied quite well for one in such a desperate condition before the operation, and expressed herself relieved. In fact, hope for her recovery was entertained. Four hours after the operation she was doing as well as could have been expected, when she turned her head to one side, said "Oh!" and died without the slightest warning.

The weak heart in this case was the strongest unfavorable prognostic point, making her chances of recovery from operation exceedingly doubtful.

It is not always an easy matter to determine whether a given case should be operated upon at all. The probable result is a prominent factor in determining this important question.

In the *British Gynecological Journal* for May, 1894, is an interesting report on the "Conservative Treatment of Disease of the Uterine Appendages," by Dr. Routh, of London. On page 68 he gives a table of 511 laparotomies by seven different operators. One operator had 170 cases in 2 1-2 years; another 58 cases in a town of 100,000 population. They all occurred in 45 institutions in France, and M. Doleris believes that they were done ten times more frequently than reported, making over 5,000. He also believes that four-fifths of them were needless. He further states that in 300 cases during three years only 50 reasonably

required the operation, which in France is done for ovarian folliculitis, catarrhal salpingitis, pelvic neuralgia and hysteria.

In the *Lancet* for February, 1891, Mr. Tait describes a visit made to one of his ardent followers, who produced two dozen appendages in bottles, "which in almost every instance were free from guile."

Dr. Wilson, of Baltimore, says (*New York Journal of Gynecology and Obstetrics*):

"For the last three or four years I have received a large number of tubes and ovaries in Baltimore; in fact, I have received all that were removed by five different operators, for examination; so that I am able to say what few other men can, that a very considerable number of the operations are done absolutely with no justification. As a result of my work, covering 300 tubes and ovaries, that in at least five per cent. of the cases there was absolutely no anatomical ground for removing them. I have seen a considerable number of young women who have had their ovaries removed for dysmenorrhea, and in the vast majority of these cases there was no reason for it."

The importance of determining this important question, and as an aid to it, justifies the condensation of so much of Dr. Routh's report, in which he concludes:

"The mortality of diseased adnexa left to themselves varies from *nil* to 4 per cent. But the cases operated on by abdominal section varies from 2.5 per cent. to 12.1 per cent."

Among the unfavorable prognostic symptoms, which should guide and guard us in determining the propriety of an operation, may be mentioned:

1. Probable malignancy.

2. Sepsis from the existence of pus for a long time, with co-existing muscular atrophy, and therefore weak-

ness, and especially heart weakness.

3. The morphine habit.

4. Communication with other viscera.

5. Co-existing disease.

It may be said without fear of contradiction that no class of cases give the attendant greater anxiety for the first four or five days than those of abdominal section. The symptoms are usually stormy, often tempestuous—even furious. As a rule, the prognosis can be told when the operation is completed: *i. e.*, aside from intercurrent troubles. Extensive and firm adhesions do not especially complicate recovery, unless some of the viscera have been injured, or unless the tissues are so disorganized and so friable that a perfect toilet cannot be made. The following case will illustrate this point:

Mrs. S., age 44, married 1880, no children, was admitted to the Robinwood Hospital for Women, March 31, 1894. The abdomen, though not enlarged, was very tender in both ovarian regions. The uterus was fixed within the pelvis, three inches deep, slightly deviated to the right, and the os and cervix were small. The menses had been regular, began when she was sixteen years old, and have always been attended with great pain. About two months ago she recovered from a severe attack of pelvic peritonitis. Though she was markedly anemic, the digestive, nervous and respiratory systems were in a healthy condition. No hereditary tendency. Her illness began with a general peritonitis fifteen years ago, since which time she had been an invalid. The pelvic roof was hard and tender, and she could not say that she was ever free from pain. The prognosis could not be looked upon as unfavorable up to the time of operation. Both ovaries and tubes were matted together on either side, the left ovary

contained about a pint of clear fluid. Adhesions were very extensive and hemorrhage profuse, and could only be controlled by continuous suture through the tissues, which were so friable that the ligature would cut entirely through when tied. The history was uneventful until the beginning of the fifth day, when septic symptoms were plainly present. Though the temperature was only 99, the pulse was 130. The abdomen, distended and tympanitic, was immediately reopened, and the pelvic cavity thoroughly washed out. It contained a dark-colored, offensive fluid, and about an ounce of pus, the result of the sloughing of the disorganized tissues on either side, having insufficient vitality to restore. Death occurred on the beginning of the sixth day from septicemia.

So far as the symptoms were concerned, the prognosis was not unfavorable up to the morning of the fifth day, but the condition of the parts within the pelvis was a source of constant anxiety.

Secondary hemorrhage is a bad prognostic sign, especially when it follows ovariectomy, however simple the operation may have been. It may be said in this connection that any condition requiring the reopening of the abdomen makes the prognosis doubtful in the extreme.

Peritonitis following abdominal section, if at all extensive, is usually fatal, especially if it appears within two or three days after.

Dr. Greig Smith truly says that "the trinity—vomiting, tympanitis and peritonitis—are the furies of abdominal surgery." Vomiting is a prognostic sign, grave in proportion as its cause is serious. Occurring during the first 24 hours, it can usually be attributed to the anæsthetic, and need not cause alarm. If persistent, however, and if it occurs

without nausea, and the vomiting matter is dark-colored, it is an exceedingly grave prognostic sign, especially if peritonitis be present.

Absence of pain in peritonitis is a bad omen. While the temperature is unreliable as a guide, still if it is subnormal and the pulse rapid, it is a bad sign. Pinched features, depression, restlessness, a very high temperature, 104 to 105 — a dry, brown tongue, vomiting of dark-colored matter, intestinal paralysis, cold extremities, and a pulse above 140 to 150, are exceedingly grave symptoms.

Intestinal perforation, from whatever cause, is a terrible disaster. Repair may be possible, but should the patient escape a fatal peritonitis, she must accept indefinitely that loathsome condition — a fecal fistula. Perforation, therefore, whether occurring before or by accident during the operation, may be regarded as a serious complication.

Intestinal obstruction is also an unfavorable complication, whether it is produced by distension or constriction. In cases resulting from constriction, in which the seat of trouble can be located, it may be successfully relieved, but in the large proportion of cases it must be searched for, the search usually resulting in disaster.

A singular and an unfortunate case occurred at the Robinwood Hospital during April, 1894. The patient was forty-three years old, married in 1888, no children. She was suffering from a multinodular myoma,

which was first noticed about seven years ago. Operation was advised on account of the size of the tumor, pain, and the rapid inroad upon health and strength. While the prognosis in all such cases is doubtful, the chances for her recovery were considered fair. Hysterectomy was performed April 26, 1894. The symptoms could not have been more favorable up to the beginning of the seventh day, when symptoms of intestinal obstruction suddenly arose. There was no general abdominal distention, the distention being entirely limited to the transverse colon. The symptoms all pointed to the small intestines as the seat of obstruction. Bowels had moved on the third day, and flatus frequently passed since. The general symptoms were those of profound shock—so great that search for the obstruction could not be attempted. The abdomen had been reopened on the second day for secondary hæmorrhage, the bleeding vessel, springing from the right lateral abdominal wall beneath the diaphragm, having been secured and tied. Patient died at 7 P. M. on the seventh day after operation.

The abdomen was re-opened, post-mortem, and it was found that a double coil of small intestine had slipped through a hole in the mesentery close to its attachment to the posterior abdominal wall. The perforation must have been the result of adhesion to the tumor. (*Columbus Medical Journal*, March 5, 1895.)

BOOK REVIEWS.

(All Exchanges and Books for Review should be sent to Dr. C. G. CUMSTON, 826 Beacon St., Boston.)

PATHOLOGY AND SURGICAL TREATMENT OF TUMORS. By N. SENN, M. D., Ph. D., LL. D., etc. Philadelphia, 1895. W. B. Saunders, 925 Walnut St., Publishers. Price cloth \$6.00. For sale by subscription only.

A work of this caliber deserves several pages to be properly reviewed. For want of space we cannot do this, but only say that we stand in greatest admiration for this fine contribution to surgical literature.

The distinguished author cannot be too highly congratulated upon this work, which is in every way clear, thorough and scientific. The subject of tumors of every type, developing in the various organs and regions of the human body, are described at length in the thirty chapters of the book.

We are particularly pleased with the abundance of fine plates and figures illustrating the text.

Mr. Saunders has made the volume most attractive and first-class in every way.

We heartily commend this work to the profession as being the finest and most complete treatise on tumors that has appeared in the English language.

ZUR LEHRE VON DEN ANGEBORENEN UND ERWORBENEN VERWACHSUNGEN UND VERENGERUNGEN DER SCHEIDE. Von Dr. F. L. Neugebauer. Berlin, 1895. Verlag von S. Karger. Price 6 marks.

This is a careful and very complete monograph on the obliteration and atresia of the vagina in all their phases, both congenital and acquired. The brochure is richly documented in cases from the literature collected by the author, the details of nearly one thousand being given.

It will be found interesting to the gynecologist and obstetrician.

TRANSACTIONS OF THE MICHIGAN STATE MEDICAL SOCIETY. VOL. XIX, 1895. Published by the Society.

This handsome volume of some six hundred pages contains an enormous amount of matter. The number of papers is forty-seven.

Malignant diseases of the uterus and diphtheria are very fully dwelt upon and discussed. Many other important papers on subjects relating to gynecology, general medicine and surgery, are to be found, and are well worth reading.

We extend our congratulations to the Society for this year's transactions.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK FOR THE YEAR 1895. Published by the Society.

As might be expected, this year's work of the Society contained in the pages of their transactions, is of great value and interest.

There are thirty-seven communications pertaining to the various

branches of medical science from the pens of men of high professional ability, rendering the volume a most valuable one, and one that will be read with interest by all.

AN AMERICAN YEAR BOOK OF MEDICINE AND SURGERY. Edited by GEO. M. GOULD, M. D. W. B. Saunders, publisher.

Notwithstanding the rapid multiplication of medical and surgical works, still these publications fail to meet fully the requirements of the *general physician*, inasmuch as he feels the need of something more than mere text-books of well-known principles of medical science.

This deficiency would best be met by current journalistic literature, but most practitioners have scant access to this almost unlimited source of information, and the busy doctor has but little time to search out in periodicals the many interesting cases, whose study would doubtless be of inestimable value in his practice. Therefore a work which places before the physician in convenient form an epitomization of this literature, by persons competent to pronounce upon the value of a discovery or of a method of treatment cannot, but command his highest appreciation. It is this critical and judicial function that will be assumed by the editorial staff of the "American Year Book of Medicine and Surgery."

It is the special purpose of the editor, not only to review the contributions to American journals, but also the methods and discoveries

reported in the leading medical journals of Europe, thus making the work characteristically international. These reviews will not simply be a series of undigested abstracts indiscriminately run together, nor will they be retrospective of "news" one or two years old, but the treatment presented will be synthetic and dogmatic, and will include only what is new. The first volume of this yearly publication will be issued on Jan. 1, 1896.

THE ARCHIVES OF PEDIATRICS will commence its thirteenth year with the January number, under the business management of E. B. Treat, publisher, of New York, long identified with medical publishing interests. The "Archives" has been for twelve years the only journal in the English language devoted exclusively to "Diseases of Children," and has always maintained a high standard of excellence.

The new management proposes several important changes in its make-up: increasing the text fifteen per cent, and enlarging its scope in every way. This will give room for the fuller contributions and additional collaborators who have been secured for the various departments, all of which give promise of a more successful era than has been known even in the already brilliant career of the journal.

The editorial management will be in the hands of Floyd M. Crandall, M. D., Adjunct Professor of Pediatrics, New York Polyclinic, and Chairman of Section on Pediatrics, New York Academy of Medicine.

ANNALS

—OF—

GYNÆCOLOGY AND PÆDIATRY.

DEPARTMENT OF PÆDIATRY.

REVIEW OF PÆDIATRY.

THE ADMINISTRATION OF DRUGS TO CHILDREN.

In the therapeutics connected with childhood the more simple the prescription, the more concise, the freer it is from odor, and the smaller its volume, the better it will be accepted.

In prescribing, therefore, it should not be forgotten.—

1. That the substances most easily administered are the tinctures and alcoholic extracts, in the form of drops (aconite, digitalis, belladonna, laudanum, etc.), mixed with sweet liquids, as black currant syrup, Malaga wine, currant syrup, prune juice, orange juice, licorice, coffee, and sometimes distilled water. Certain powders that are very active may be mixed in small doses with soups which the children take as daily food; thus may be used scammony, bismuth, magnesia.

2. That powders, on account of the minute quantity which it takes for a dose, are valuable forms for the administration of drugs to children (scammony, jalap, calomel, santolin, etc.); these can be placed on the child's tongue, and are easily swallowed by taking a sip of water.

Further, the elixirs, the biscuits (scammony), the pastilles (lactate of iron), the chocolate (iodides), the electuary (honey and syrup of althæ), mixed with sulphur, with senna (1-2 to 2 drachms), magnesia (1-2 to 2 1-2 drachms), confections and syrups can be used in pharmacy to mask the taste of drugs, according to the special liking of the child.

One should avoid using prescriptions containing over 5 drachms, 1 ounce, or 2 ounces; at least, not over this amount should be administered in forty-eight hours to a child of eight or ten years of age.

In prescribing very powerful drugs it is well to avoid danger by prescribing them always in solutions of known percentage.

3. In prescribing poisonous drugs certain rules should be observed. Although there is no positive rule in this matter, the dose for a child under five years should be 1 to 1 1-2 drops of a tincture or alcoholic extract for each completed year [?], and always in fractional doses up to six and eight years.

Active substances (belladonna, opium, nux vomica, etc.) should be prescribed for children under five

years in doses ranging from 1-12, 1-6 to 1-4 grain, and in an amount of fluid varying from 5 to 10 drachms, and divided into teaspoonful or dessertspoonful doses in the twenty-four hours. The number of tea or dessertspoonful doses given in twenty-four hours should be carefully calculated.

4. In giving very active drugs to very young children it is generally best to write out the name and amount of the drug fully and not in figures, and to state at the top of the prescription that it is for a very young child and that the drops should be counted.

In certain cases where the tolerance and docility of the child are not good, recourse may be had to certain medicaments that are capable of being absorbed through the skin or mucous membranes, such as fumigations of naphthaline, tar, benzoïn, carbolic acid, creosote, balsams, resins, etc., inhalations of oxygen, eucalyptol, turpentine, tinct. of iodine, and camphor.

Dr. Lefort has used the following mixture with success in the form of inhalations from a vapor-bath :

R Pulv. camph., 3x;
Oleum picis liquidæ, 5v;
Tr. iodi., 5v.

Frictions of the following are also useful: mercurial or iodine ointment, turpentine liniment.

Baths of sublimate, sulphurous acid, wine, vinegar and mustard.

The following drugs are given hypodermically :

1. Morphine sulph., 5 to 10 drops of a one per cent. solution.
2. Caffeine.

R Caffeinæ citratis, gr. xxx;
Sodii benzoat., gr. xlv;
Aq. dest., 5ii.
Sig.—From 5 to 15 drops hypodermically.

3. Quinine hydrochlorate (Legroux).

R Quinine hydrochlor., gr. xv;
Aq. dest., 5i.
Fifteen minims hypodermically (4 grains *l. i. d.*).

4. Ether, but with great care, on account of eschars.

5. Ergotinine, 4 drops in the lumbar region.

6. Antipyrin, 4 to 7 grains (as for quinine).

7. Hydrochlorate of hydrastinine in a ten per cent. solution, one-half a hypodermic syringe to a full one every other day for children under ten years (Dauchez.)

8. R Guaiacol.
Eucalyptol, of each, gr. lxxv;
Olive oil, q. s. ad 5x.
Sig.—Inject 2 to 10 minims (Roussel).

9. R Creosote, 5iv;
Olive oil, 5ivss.

Very little used (Legroux).

The following drugs and formulæ are given for internal administration.

ACIDUM CARBOLICUM.

Very dangerous in permanent dressings in a strength of over one per cent.

Used externally as a wash; internally in very small dose. Physiological properties, antiseptic (in typhoid fever): three to four days at most. Clyster, 1 to 3 grains: antithermic (in pulmonary tuberculosis).

For external use the solutions should be 1 to 150 or 1 to 200.

For internal use in a clyster the following is recommended (Labrie-Ferrand).

R Glycerini, 5v;
Acidi carbolici, gr. i to iii;
Alcohol, q. s., dispensatum;
Aque, f 5iii.

As a gargle (Dauchez):

R Acid. carbolicæ, gr. xlv;
 Potass. iodidi, gr. lxxv;
 Tr. aconiti, gtt. xv;
 Glys., f ʒ iii;
 Syr. pruni Virginianæ, ʒ vi. gr. xv.
 Sig.—15 drops in a glass of warm water.

PYROGALLIC ACID.

Toxic, dangerous, difficult to administer.

Therapeutic Properties. — Astringent, caustic (psoriasis).

For external use, only in the form of an ointment of the strength of one in twenty-five parts: To be used once a week (isolate from surrounding part with vaseline).

R Acid. pyrogallici, ʒ i;
 Vaseline, ʒ iii.

As a very active purgative:

R Confectio semnæ, gr. v.

This amount to be repeated until the purgative effect desired is obtained.

CASCARA SAGRADA.

Laxative: 3 to 5 grains in capsule. To children over ten years of age, 7 1-2 grains. Of the fluid extract, 1-2 to 1 1-2 drachms, diluted.

ETHER.

Properties. — Antispasmodic, diffuse stimulant (collapse), local anæsthetic (in spray), general anæsthetic (inhalation).

Dose.—5 to 100 drops, as an antispasmodic.

R Aquæ menth. pip.,
 Aquæ aurantii florum,
 Aquæ menth. viridis,
 Syr. toluani, of each, ʒ iiss;
 Ether sulph., gtt. xxx.

IRON AND AMMONIUM CITRATE.

Properties. — Tonic and stimulant (chloro-anæmia).

Dose. — 1-3 grain. 4 grains. 7 1-2 grains.

A wine (Dauchez):

R Ferri et ammonii citrat., gr. xv;
 Syr. hæmoglobin,
 Glycerini, of each, f ʒ iv;
 Vin. Malagæ, f ʒ iiss.

BELLADONNA.

Much more easily tolerated than opium, especially in the form of the tincture, in children from three to six years of age (J. Simon).

Properties. — Narcotic, sedative, and antispasmodic.

Indicated in many diseases (laryngitis, bronchitis, whooping cough, incontinence of urine, epilepsy).

Dose.—Of the tincture, 2 drops for each complete year of the child's life; when necessary, 30 to 40 drops in a child of four, but given a little at a time (J. Simon). Fractional doses in suppositories. 1-12 to 1-3 grain. In syrup associated with balsam of Tolu: one year, 2 drops; two years, 4 drops; three years, 6 drops; four years, 8 to 10 drops.

HYDROCHLORATE OF COCAINE.

To be watched carefully, rarely given internally.

Properties.—Anæsthetic, analgesic (swabbing the pharynx); earache, whooping cough (Labric).

Internal Use.—2 to 15 drops of a five per cent. solution in twenty-four hours (Veillard).

External Use.—Swabbing with a two to five per cent. solution (Labric).

R Glycerini, ʒ i;
 Aquæ, ʒ xv;
 Cocainæ hydrochlor., gr. iv.

CAFFEINE AND THE BENZOATE OF CAFFEINE.

The best preparation of this drug is the alkaloid caffeine (Huchard): it is well tolerated in large doses without danger.

Properties.—Heart tonic (adynamia): diuretic (asystolia, nephritis with uræmia).

Dose.—1-6 to 3 grains: wine of caffeine, 1 1-2 to 3 ounces in twenty-four or forty-eight hours.

The following is a good formula for hypodermic injections:

R Caffeine, gr. xxxii;
Sodii benzoat, gr. xlv;
Aque dest., ʒ ii.

Sig.—Inject 15 to 30 minims in twenty-four hours.

Each dose of fifteen minims contains four grains.

CAMPBOR AND THE MONOBROMATE.

The monobromate of camphor is an excellent sedative, without any depression (Ferraud).

Properties.—Antispasmodic, sedative, and hypnotic.

Dose.—1 to 7 grains.

For hypodermic use (J. Roussell):

R Camphore monobromat., gr. xlv;
Olei olivæ, q. s. ad f ʒ ii.

—*Dauchez (Rev. Internat. de Med. et de Chir. Pratiques, May 25, 1895. Therapeutic Gazette.)*

HARELIP.

Heath, in a lecture on this subject (*Practitioner, No. 11, 1895*), states that the best time for operating, in the absence of some special indication, is about the sixth week. The operation which he advises is to pare

one side of the lip freely and to cut a flap from the other side of the lip and transfer it to the opposite side. It is usually most convenient to take the flap from the longer side. The author prefers fine, dry, chromicized catgut sutures, applied closely. By means of one of the sutures, which is left long, the lip is inverted, and two or three stitches introduced to bring the mucous membrane together. A piece of adhesive plaster is used to draw the cheeks together to relieve the sutures from tension. As it is desirable to avoid crying, the writer directs that the child be nursed assiduously and that minute doses of opium be given at intervals. During the process of healing it is recommended to feed the child with a spoon.

In the cases of double harelip with projection of the intermaxillary bone, the author strongly recommends that the latter should be cut away. In cases in which it has been left, he has seen it remain loose and troublesome, and in two instances he has been called upon to remove it later in life.

UMBILICAL HERNIA OF THE NEW-BORN AND INFANTS.

1. In the children of either the rich or the poor the cure of umbilical hernia by truss must be tried up to the age of eighteen months or two years, unless there be certain exceptional contraindications.

2. In these young patients the use of the conical pad and the elastic spring is to be avoided. A hemispherical hard-rubber pad, supported on a metal plate and held in place by a bandage, is the best appliance. The apparatus should be changed every eight or ten days.

3. In children two to seven years of age, belonging to well-to-do fam-

ilies. who are carefully looked after, an attempt may still be made to cure the hernia by bandage.

4. Children of the same age, whose parents are poor, and consequently unable to give the necessary care to the child, or if they are negligent or ignorant, should not be subjected to this treatment if there is any tendency for the hernia to increase or to give trouble.

5. The umbilical hernias which persist after the seventh year, in spite of careful use of the bandage, may be treated by other measures.

The following cases should be subjected to operation:

1. Umbilical hernias of the newborn, if strangulation occurs, or if persistent gastro-intestinal troubles are induced which seem to depend upon the hernia.

2. The hernias in children of from two to seven years present analogous indications.

3. Children of this age, belonging to poor families, who do not receive proper attention, if at the end of a year or eighteen months the hernia is still of the same size.

4. Hernias that persist after the seventh year, that are rebellious to treatment and tend to increase in size.

5. If the skin covering the hernia is inflamed or ulcerated.

6. If the hernia interferes with the occupation that the person has selected.

7. Umbilical hernias with a large ring.

8. Those that are subject to strangulation or inflammatory accidents.

9. Those that cause pain and gastro-intestinal disorders, and consequently interfere with the development of the child. (*Cahier, Revue de Chirurgie*, Nov. 4, 1895.

WHAT SHALL A GENERAL PRACTITIONER DO FOR AN ACUTE OTITIS?

WHEN the pain is due to inflammation either of the external auditory meatus or of the middle ear, and the patient is seen in the early stages of the attack, the physician should attempt to abort the inflammation as well as to relieve the symptoms. The most efficient measure for aborting the attack is undoubtedly the local abstraction of blood. In very young children either wet cupping or the use of natural leeches is difficult, although the cup can be applied if the child is firmly held: and if the physician does not possess enough confidence in himself to manipulate instruments in the external auditory canal, it is certainly wise to employ local depletion. The region selected for the application either of the wet cup or of leeches is that lying close to and immediately in front of the tragus. From half an ounce to one and a half ounces of blood may be withdrawn in this region, and in many cases the measure is beneficial. The patient should be kept in bed and a free catharsis instituted. If the case is seen very early, it is frequently wise to follow the abstraction of blood by the administration of an opiate sufficiently powerful to quiet the patient for five or six hours, in the hope that depletion and absolute rest for several hours may abort the attack. For the further relief of pain, the use of heat about the ear is a means at the disposal of all, and is certainly valuable, either after local depletion or where this measure is not deemed advisable. The most convenient method of employing dry heat is by means of the Japanese pocket-stove; the hot-water bag, although less convenient, is equally

efficacious. Where these are not available, a stove-lid, a flat-iron, or a brick previously heated, wrapped in a piece of flannel and placed under the pillow, will supply the place of the more convenient apparatus above described. In order that the heat may be applied more directly, the author occasionally recommends that a small hot salt-bag be introduced into the meatus, heat being applied externally by means of the hot-water bag or other device, as stated before. These salt-bags are conveniently made by cutting off the finger-tips of a kid glove, filling the tips with salt, and placing them upon a hot plate until they are thoroughly heated, after which they are placed just within the meatus and heat is applied externally, as already described.

If there is one point we should emphasize more than another, it is that under no circumstances is any oily substance to be introduced into the meatus. The old practice of dropping warm sweet oil or a mixture of sweet oil and laudanum into the external auditory canal for the relief of otalgia is a relic of barbarism that deserves no place in modern medicine.

The writer does not favor the use of moist heat in the early stages of an acute otitis, consequently the irrigation of the canal with warm water, or the application of poultices to the ear, the canal being previously filled with water, are not measures to be advised. Moist heat softens the tissues and encourages their disintegration, while our efforts in the early stages should be directed towards aborting the inflammation. Heat is employed in the early stages simply for the relief of pain, and dry heat does not encourage suppuration, while moist heat certainly favors it.

If, after the effects of the opiate have disappeared, the pain reappears,

it is unwise to administer a second dose, as it will only mask the symptoms. The local abstraction of blood and the application of dry heat are then the only resources at the command of the physician, previous to the appearance of discharge from the ear, unless he is able to use the head-mirror and inspect the parts affected.

After discharge has made its appearance, frequent irrigation of the external meatus by means of a weak antiseptic solution, such as a solution of the bichloride of mercury (1 to 5000) or of boracic acid, is the best measure for combating the inflammatory process and for preventing its extension to the neighboring bony parts. In many of these cases the discharge is serous in character, and will continue so unless it is infected, as it lies in the external auditory canal. All that is needed is to keep the meatus perfectly clean and prevent infection of the discharge. It is unwise to stop the meatus with cotton or to keep the ear covered, as in this way local infection of the canal is liable to occur, causing either circumscribed or diffuse inflammation. While the ear is discharging, considerable relief may sometimes be obtained by filling the meatus with warm water and applying heat externally; a poultice covering the auricle, however, is not necessary, and causes so much maceration of the integument as to constitute a disadvantage: if the canal is filled with water and dry heat is applied externally, we have the beneficial action of the heat and moisture upon the parts affected without inflicting any injury upon the auricle.

After the acute symptoms have subsided, certain measures directed towards checking the discharge may seem necessary. It must be remembered that under no condition should any attempt be made to diminish the

quantity of the discharge until the temperature becomes normal and all pain has disappeared. In the large proportion of cases where spontaneous rupture of the drum membrane has taken place, if the parts are kept carefully cleansed, in the manner previously described, the discharge will cease spontaneously: in a small proportion of cases it continues. The use of astringent instillations cannot be recommended. In cases where the discharge persists, it is perfectly safe to use a saturated solution of boric acid in alcohol as an instillation after syringing. A few drops of this solution introduced into the meatus by means of the medicine-dropper, after careful syringing, may be employed with perfect safety, and is usually sufficient to stop the discharge. The objection to solutions of sulphate of zinc and other kindred instillations is that they form an excellent nidus for the development of vegetable parasites, and unless the physician can inspect intelligently, they possess no advantage over the alcoholic solution of boric acid. (*Dr. Dench. Archives of Pediatrics, May, 1895.*)

OPERATIVE PROCEDURE FOR SPINA BIFIDA.

HOWITT (*Dominion Medical Monthly*, vol. iv., No. 6) describes his plan of operating, as follows: When

normal skin covers the tumor, the outlines of the skin-flaps are traced on the surface of the tumor. After perforation of the skin, the probe-pointed blade of the scissors is introduced between it and the membranes of the sac, and the skin is divided. The flaps are now separated from the cyst down to the fascia of the back by the fingers of the scalpel-handle. By the same means the base of the tumor is parted from its loose attachment to the fascia beneath it till the pedicle is exposed. A prepared silk or other suitable ligature is tied as deeply as possible on the pedicle, and all external to it is removed. After oozing has ceased, the wound is closed and dressed: a pad of gauze is placed next the wound and covered with absorbent cotton, and the whole covered by a piece of oiled silk, the edges of which are sealed to the back with collodion to prevent the ingress of urine. If the tumor has been very large, drainage may be required. When part of the tumor has no cutaneous covering, the line of the primary cut for making the flaps should run into the skin at least a quarter of an inch from the margin. The patient should be kept at rest for two or three weeks. The essayist reported seven cases treated, four of whom are living. In only one case—an unfavorable one—was death attributable to operation.

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ORIGINAL COMMUNICATIONS.

Bicycling, from the Standpoint of the General Practitioner and the Gynæcologist.

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MR. PRESIDENT AND FELLOWS OF THE SOCIETY:—The subject I have chosen is perhaps somewhat foreign to the topics usually discussed before this society; nevertheless I trust, in consideration of the importance that this form of exercise is assuming from a therapeutic and hygienic point of view, it will meet with your approval.

While the evolution of the bicycle from its primitive state to the present condition of beauty and usefulness has taken nearly a century, the advent of the modern wheel is so very recent that the literature on the subject is necessarily extremely meagre. This is more especially true in its relation to women, they having adopted it only within a compara-

tively short time; as far as this continent is concerned we may say a very short time, only two or three years. Such being the case, we find that a great deal that has been written and said has been from a purely theoretical standpoint. Thus we find that many of the evils prophesied for this pastime practically do not materialize, while many evils that the bicycle is apparently responsible for cannot in any fairness be charged against the wheel, but are due to the ignorance or foolhardiness on the part of the riders. On the other hand the over-enthusiastic have claimed results, sometimes so very extravagant that they are not likely to be fulfilled. It is the aim of this paper to criticise some of the "pros" and "cons" met

with in current literature, and incidentally to bring out the views of this society on the subject, it being felt that the future of the bicycle, as far as women is concerned at least, will depend very largely on the verdict of the gynecologist.

The pleasures to be derived from cycle riding are so very great it is no small hardship to be summarily forbidden to indulge, so that an unfavorable verdict should not be arrived at without due deliberation.

A well-known specialist is reported as saying that "Ten years hence women will have sorrow in their hearts because of the bicycle." It was this quotation, together with the following paragraph taken from an editorial in the "New York Journal of Gynecology and Obstetrics," which caused the writer to undertake this paper. The paragraph in full is "Where professional opinion has found public expression it has usually been adverse to the adoption of this practice (bicycle riding) by women. No one will probably hesitate to say that for women who have any form of pelvic disease or abnormality, especially if it be of a recent or acute character, bicycling would have a distinctly injurious effect. The pathological influence of the pedal-serving machine, which excites muscular action similar to that involved in the use of the bicycle, is too well known and appreciated to permit any sane man to encourage the latter among his gynecological patients who are suffering from pelvic inflammation. To married women also, before the

menopause, it will always be guardedly advised by every honest practitioner, because of its liability, in common with every form of violent exercise, to produce abortion." In the first place I believe I am right in saying that medical opinion is not usually adverse to the adoption of the bicycle by women; on the contrary it has been pretty generally endorsed, not only by the general practitioner but by the gynecologists, in every country in which the wheel has been much discussed. Later in the paper I shall consider the statement relative to pelvic disorders.

The comparison of the sewing machine to the bicycle, which by the way is a very favorite argument, is certainly open to the most severe criticism. A woman sitting erect on her wheel, with the leg stretched to its fullest extent at every revolution of the pedal, and the thigh never brought up high enough to make even a right angle with the trunk—with blood coursing evenly through every part of her body, and necessarily taking deep inhalation of good fresh air, is a very different picture from the woman, indoors, bent up over a sewing machine, with the body at an angle of fifty degrees with the thigh, with the resulting congestion of blood in the genitalia, and circulating stasis in the lower limbs. These are just the conditions most favorable to pelvic congestions and uterine displacements, and at the sewing machine they are generally enhanced by the lower part of the corset-steel digging into the abdomen.

If women be taught to ride with the saddle high and well forward, which is the healthful as well as the graceful position, any semblance to sewing-machine action is effectually done away with.

The point in the quotation which refers to married women is to my mind not well taken, because bicycling is not violent exercise, at least it should not be. It is unfortunate that so many writers have no practical experience of the exercise, and must get their ideas from watching riders on the race track, and a numerous class of individuals on our public streets who certainly do make violent exercise of it.

It is a fact, as I have found, that many women who, during the first months of pregnancy, cannot walk any distance without the greatest discomfort, are able to ride many miles a day with the greatest ease and enjoyment; while to an expert rider on a good quiet road, the danger of an accident is practically no greater than it would be in a carriage.

The Boston Medical and Surgical Journal, for Sept. 6, 1894, propounds the question "Should women ride a bicycle?" and as an answer the following is given as the opinion of a prominent Paris physician.

"To form an accurate opinion, the age, the weight of the woman, whether she can ride without falling off, the clothes she intends to wear, the condition of her digestion, must be ascertained. A woman, young, quick, and not too clumsy or fat, may ride longer

distances than one without these advantages. An important consideration is the appearance of the rider. Her self-possession and general feeling of well-being are improved by an appropriate dress. . . . As a general rule it should be insisted upon that corsets should be discarded if it can be done without prejudice to the fit of the dress."

I give this quotation in full, because it is a sample of another form of current bicycle advice, and is simply begging the question. The age and weight within ordinary limits have very little to do with it. Any woman can learn to ride without falling off, unless she is blind or paralyzed. However bad her digestion, the bicycle, like any other general exercise, must improve it. It goes without saying that the woman young and quick can ride farther than the one too clumsy and fat. But this is no argument why the woman inclined to adipose tissue should not be encouraged to ride. Although she cannot ride long distances she will probably derive more benefit from riding than her slim sister who can. The point as to her appearances is very well taken. A woman will wear and feel best in what she knows she looks best in, whether her physician approves or not. I think that every woman should be urged to ride in loose corsets; but to insist that a woman who has always worn corsets should ride without them is to my mind utterly impracticable. She could not even if she would.

By far the greatest danger in

wheel exercise falls on the heart: but it will be observed that trouble in this quarter arises invariably from injudicious riding. Petit, in September, 1894, was the first to call attention to this danger, when he reported at a meeting of the French Academy of Medicine, three cases of sudden death due to bicycle riding, in patients affected with heart disease. The first had been a man, sixty years old, who undertook to ride long distances, not knowing he had organic heart trouble, and the second was an individual with cardiac trouble, recently recovered from typhoid fever. The report gave rise to a great deal of discussion, and Dr. Halopeau, one of the leaders in the debate, insisted that bicycling presented no danger peculiar to itself—or beyond the danger common to any form of exercise—and argued that even invalids and old people could use it with benefit. Beyond a doubt the bicycle should be absolutely forbidden in non-compensating aortic insufficiency or mitral affections, but probably there are many forms of heart disease, in which the compensation is good, in which the *prudent* use of the bicycle is not injurious. I should consider that the great danger in these cases would be in the learning, and during which period a great deal of exertion is almost unavoidable. I think Dr. Petit's typhoid case comes as a timely warning. After typhoid we are liable to have such parenchymatous degeneration that we must warn our patients to the great-

est caution at this time, whether they have any heart lesion or not.

Probably the most exhaustive article on cycling as a cause of heart disease, is a paper read by Dr. Gus Herschell at the eight international Congress of Hygien and Demography at Budapest, and it will be remembered that his deductions were drawn, as he states himself, from excessive cycling, such as climbing long hills, and riding long distances at a high rate of speed. He divided the effects into four groups: (1) simple hypertrophy: (2) acute dilatation; (3) chronic valvular disease: (4) functional derangement. With regard to the first, we can often find, if we take the trouble to carefully examine the heart of individuals who have ridden a great deal, a slight cardiac hypertrophy without dilatation, but it is a question if this is not a physiological condition rather than a pathological. Dr. S. M. Hammond, examined fourteen riders who had ridden anywhere from five to thirteen years, and covered distances from 5,000 to 27,000 miles, and found simple cardiac hypertrophy without dilatation in ten, and in all a breathing capacity far in excess of the average man. He considered hypertrophy in this sense a purely relative term, and thinks that this condition of the heart, observed in most persons who have ridden to any extent, will gradually become common, and finally will be accepted as normal, and what is known today as a normal heart will then be considered degenerated. This

idea is apparently endorsed by Dr. Champonniere, member of the Academy of Medicine of France, who has given protracted study to French wheelwomen. He considers that the heart of the average woman in every circumstance is usually deplorably below par, and cycling so completely restores it as to "leave nothing to be desired." With regard to the other three heads in Dr. Herschell's paper, I think any one will admit that they could certainly never occur from ordinary riding. I should think that the long distance road race, 25, 50 or 100 miles, so prevalent at the present time, ought to be a prolific source of acute dilatation, particularly when we consider that very many of the riders in those races are not professionals or even accustomed to such a tremendous strain. In a case of death from acute dilatation of the heart, reported in the London Lancet, a man, age forty-six, lately taken to cycling, rode 53 miles from London to Brighton, against time, on a very heavy wheel. He died the same night. It should be the duty of physicians to point out to their patients the dangers of too much hill-climbing and long-distance riding at top pressure. It is a good rule to remember that as long as a cyclist can breathe with the mouth shut he is perfectly safe as far as heart strain is concerned. Dr Herschell's account of the mechanism by which acute dilatation can become converted into permanent valvular disease or functional heart trouble, is most interesting. An abstract of the paper

can be found in the New York Medical Journal, March 23, 1895.

The permanent enlargement of the respirating field, observed in bicyclists, with the subsequent increased absorption of oxygen, must affect the tone of every organ in the body, and the resisting power of the organism must be vastly increased. The benefit of this phase in cycle-riding cannot be overestimated, particularly in incipient lung trouble, prone to tissue degeneration, where so much depends on the power of persistence.

It has been argued that the position assumed in bicycle riding contracts the chest and deforms the spine. I have not been able to find one authenticated report of such a result. Even the first-class professionals, who are continually racing in the curved position, are erect and have a chest capacity enormously in excess of the average man, as has been shown by Marvy of Paris and many others, who have made a scientific study of the physique of professional riders. On this subject an editorial in the "Journal de Medecine et de Chirurgie Pratiques," says: "The general opinion that the bicycle curves and deforms the back of young subjects, is absolutely false." I do not mean to defend in any way the ridiculous bent position seen so often on the streets. It would seem that such a position cannot but be as injurious as it is ungainly. It is meant to imitate, but does not in the least degree, the graceful curves of the first-class professional. There are a certain number of men who are fitted by nature for trials

of strength, speed or endurance: others only permanently injure themselves in their efforts to emulate them. Women, fortunately, do not enter into these contests, and they all at least try to ride in the upright position.

While on this subject one naturally comes to the charge that the cycle only develops the lower extremities. In this connection I agree that the leg muscles are certainly most developed, but not at the expense of the rest of the body. The muscles of the thighs and pelvis are in constant activity. The sacrolumbal, and in fact all the muscles of the back as high as the neck, are constantly in use to balance. The muscles of the arms are used in climbing hills and riding fast, and we know that muscles develop better repetitions of slight contractions rather than by excessive contractions.

That young persons may acquire a lateral curvature of the spine, like that produced by leaning over a school desk, as has been asserted, is manifestly absurd. The regular parallel contractions of the cyclist could certainly never lead to such a result.

The serious objection has been raised that bicycle riding might engender the habit of masturbation in young girls. There has been considerable discussion on this subject. As far as I know it has been brought up on purely theoretical grounds. Women suffer no inconvenience from the saddle outside the discomfort occasioned in the early days of learn-

ing. It is only in very rare instances, in abnormally susceptible women, that any erotic sensations are complained of. Even in these instances the fault is in the position of the saddle. If it is tilted back far enough, instead of riding on the perineum, the woman rides on the tuberosities, as she should, and this question need never be brought up. It is beyond a doubt, however, that the bicycle saddle is susceptible of much improvement.

What seems to me a most fanciful objection is the idea advanced that constant cycling for women would increase the size of the iliac and psoas muscles, thus diminishing the superior strait and presenting an obstacle in future parturition. These muscles are flexors and are comparatively little used by the cyclist. The extensors not only drive the machine, but practically lift the opposite leg on its pedal, and, as Dr. Egbert of Philadelphia has shown, the extensor muscles would have to become enormously developed before such a condition could occur. He shows that only a pelvis very narrow transversely could be an excuse for forbidding cycling on this ground.

Returning to the first quotation I made relative to pelvic disease. There can be no doubt that any acute inflammatory trouble would utterly bar cycle riding: so would a lack of perineal tissue, with its accompanying condition of prolapse, but to say that *any* form of pelvic disease is increased thereby, I believe is not according to the facts. The increased

tone and vigor which is generated in every part of the body by this pastime must necessarily be felt in the pelvic organs. By the proper use of the wheel I have seen many local congestions clear up and the natural relency of the tissues return. I have known many of these unaccountable pelvic pains so many women suffer from to disappear to return no more, and I believe that many an old pelvic adhesions is broken up under the gentle muscular exercise and light, tremendous vibration of cycle riding, and I firmly believe that there never has been another form of exercise that is so well adapted, or that is going to do so much for women as bicycle riding. I know women who could not be induced to go in for any form of outdoor exercise take up the wheel and stick to it one year after another, to the greatest improvement of their physical condition. While for that small army of women who belong to the neurasthenic and hysterical class there is nothing comparable with it.

There is an exhilaration that goes with this exercise of speed, which combined with its gentleness, combines to make it an ideal exercise for women — without this exhilaration, exercise becomes work, and work is not exercise in a medical sense. English women walk a great deal — they walk for the pleasure of walking and derive untold benefit from it. The wheel is no improvement over this kind of walking as a general exercise. But American women will not walk, at least not for pleasure—

and the wheel has great benefits over the walk for duty's sake. Fortunately nearly all women take to the wheel and it is fortunately within the reach of the great body of women. It has neither the expense of such exercises as horseback riding, or the difficulties of place which govern others, like tennis, golf, or bowling. Exercises like these in which women participate, can only be indulged in in suitable localities, and most of them only by daylight, thus they affect only the few and cannot be very far reaching in their results. The wheel on the contrary is always ready at any time, day or night, depending on nothing except the weather. So universal has it become that it must have a marked effect on the coming woman, and the effect is going to be good. Probably Championiere is right when he says he can pick out infallibly the wheel woman from her sister as they cross the street. The one proceeds with such self confidence, grace and ease, while the other backs, dodges, loses her head and invites disaster.

Dr. R. L. Dickerman in the January number of the *American Journal of Obstetrics*, so aptly expresses my ideas that I cannot do better than quote him. "When there is no acute inflammation bicycling will probably show itself capable of large results as an agent in curing pelvic disorders. Through it we may look for freer dress, better exercise, for out-door activity, for studies, nerves, strength, muscles, for painless periods and for easy labors."

Although favorable to cycling, the

decision of the French academy that no one should ride a wheel without consulting a physician, was perhaps brought about by Dr. Petit's three cases of sudden death already reported, and by many would be thought unnecessary. It would certainly prevent the repetition of such accidents in unsuspected heart trouble. But the greatest benefit from consulting a physician would be in the case of lady riders. A little timely advice would often save them a great deal of subsequent annoyance and disaster. Those with certain acute pelvic trouble could be warned in time, and others informed as to their lines of safety. All women should

be informed that they cannot ride with impunity during the menstrual period. They should be shown the danger of climbing long hills or riding long distances or high rates of speed, and also that to derive benefit from cycling they must ride in the upright position, with the saddle high up and well forward, tilting it back so that they ride always on the tuberosities.

The present fashionable craze for riding will undoubtedly diminish, but there will never come a time when women will not ride a wheel, and it will permanently occupy a prominent place in rational therapeutics.

A Pregnant Uterus complicated with Fibroid; Induced Abortion and Self-Delivery of Tumor through the Abdominal Wall.*

JACOB FRANK, M. D.,

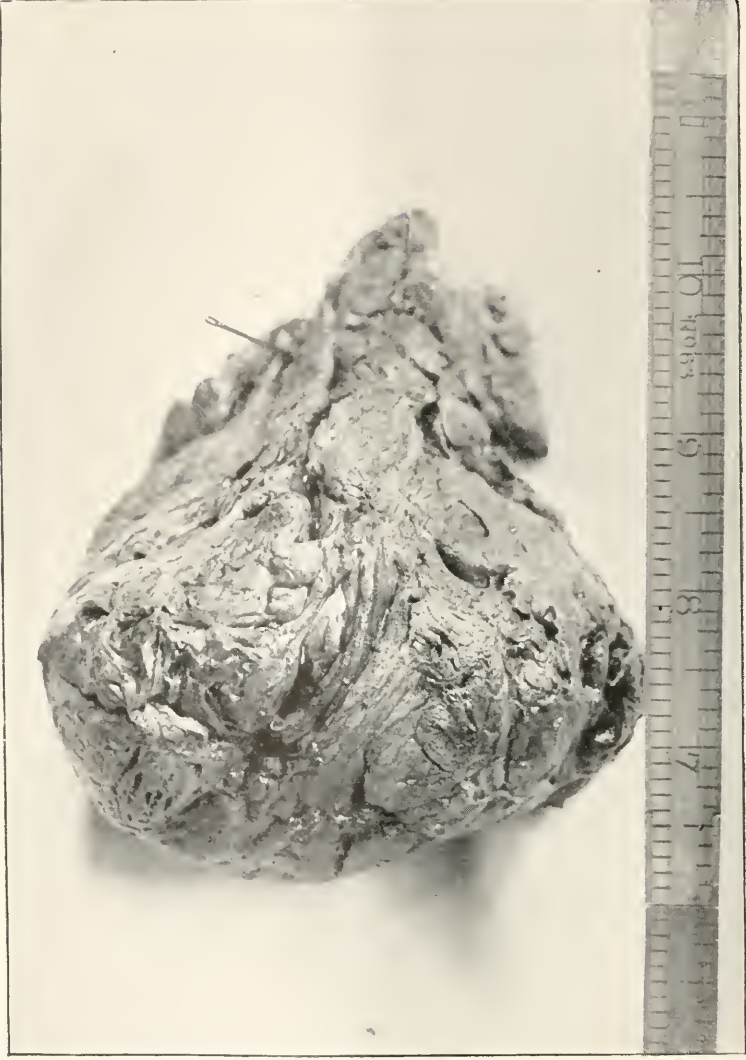
Surgeon to St. Elizabeth's Hospital, Chicago, Ill.

BEFORE I commence the report of this case, permit me to state that all the facts, both major and minor, have been noted during the entire illness. This being the case the paper may seem to be burdened with unnecessary minutiae, but having deemed it such an interesting affair and having looked up all the literature at my disposal and failing to find a similar case on record, I offer this as an excuse for presenting a lengthened report of the case. I hope that I

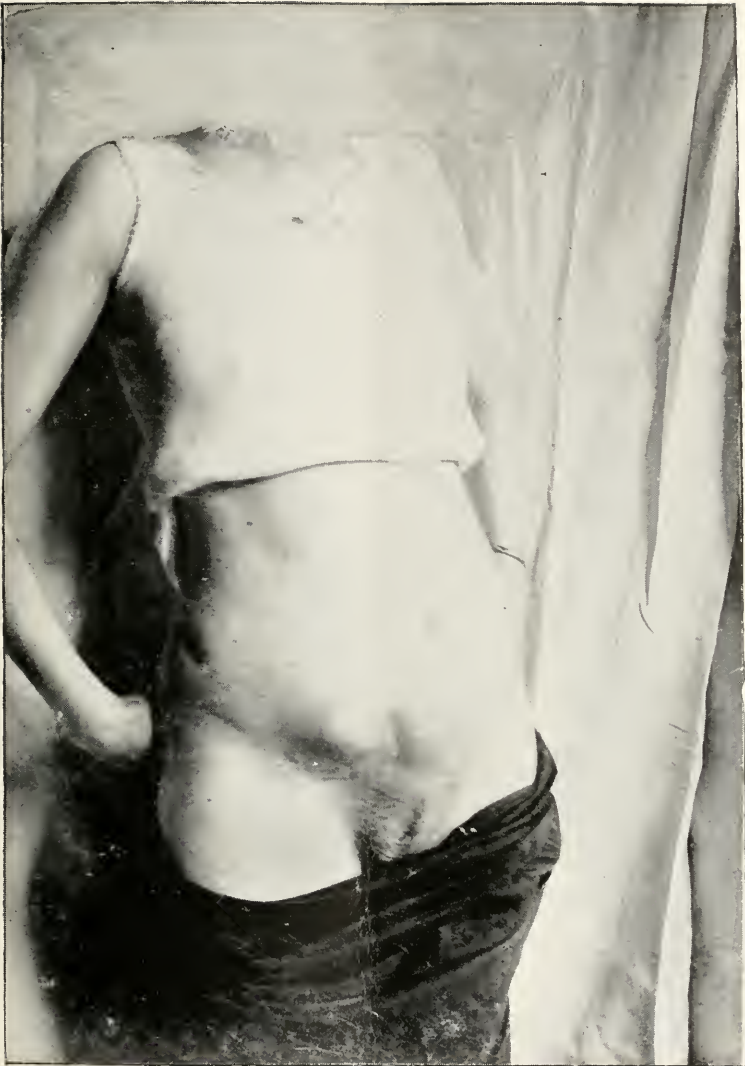
will be pardoned for taking up your time with seeming trifles.

Mrs. C., married, aged thirty-four, an opera singer, was sent by me to St. Elizabeth's Hospital, January 1, 1895, with a diagnosis of fibroid tumor of the uterus associated with pregnancy. The patient was first seen in October, 1894, stating at the time that she had a tumor which she wanted removed. The menses having failed to appear the month previous, and pregnancy being suspicioned, she was advised to wait until a positive diagnosis could be established.

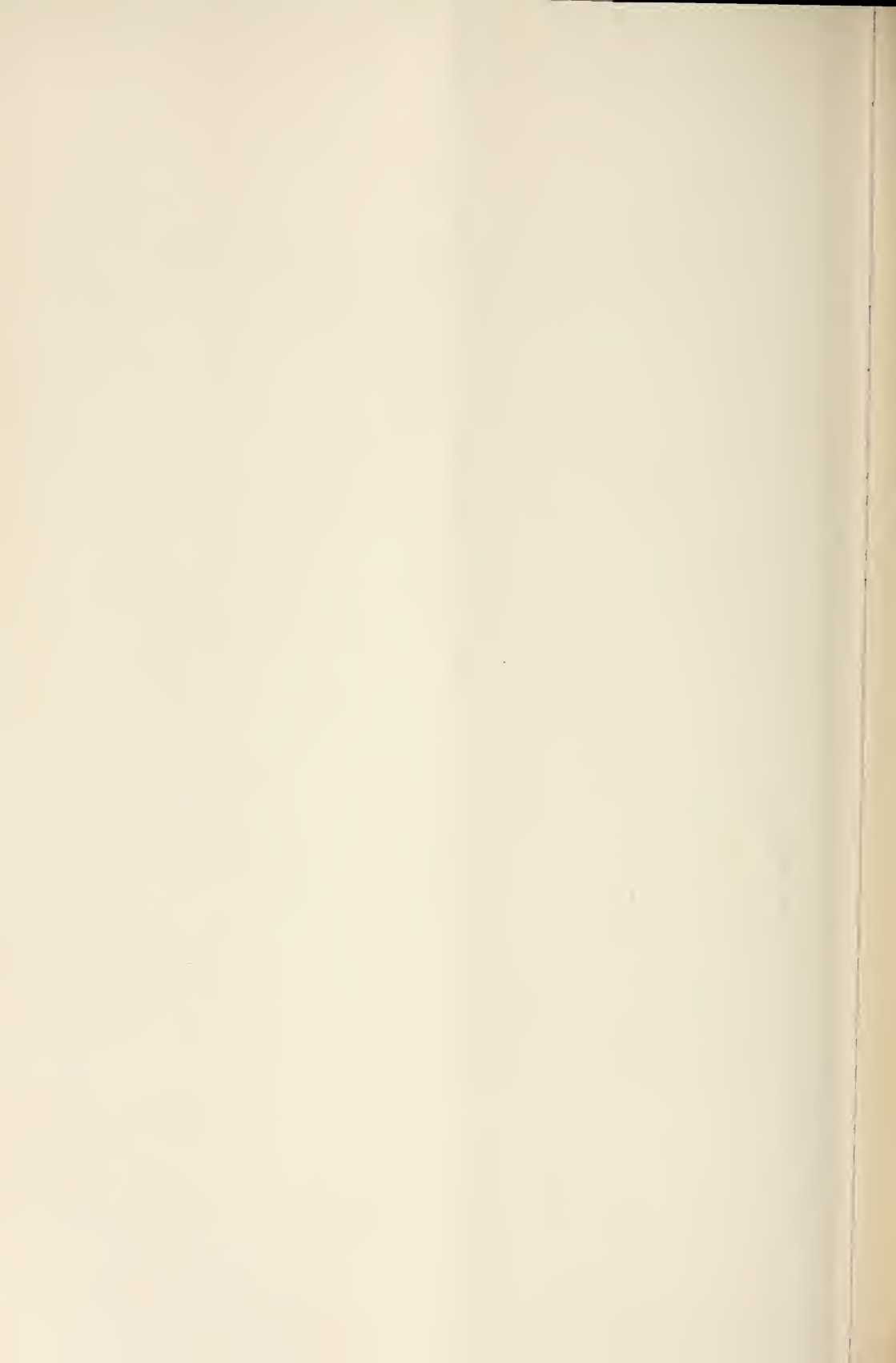
*Read before the Chicago Medical Society, Oct. 21, 1895.



DR. FRANK'S CASE.



DR. FRANK'S CASE.



During the time the patient was kept under observation she was confined to her bed more or less, complaining of pains in the uterus. The tumor enlarged rapidly as also did the uterus and breasts, and unmistakable signs of pregnancy presented themselves.

All doubt about her condition being removed it was deemed advisable to induce abortion, and at a later period to remove the tumor. Dr. M. H. Luken being called in consultation, approved of this plan of procedure. On examination, after admittance to the hospital, two tumors were easily outlined, the one on the right of the median line being of hard consistency and the size of a cocoanut, was diagnosed an intramural fibroid; the tumor to the left the impregnated uterus. The patient's general condition was fair.

After rendering the parts aseptic by repeated vaginal douches, a sterilized English catheter was introduced into the uterus, and at the expiration of twenty-four hours, no progress having been made, the catheter was removed, the vagina again thoroughly cleansed and a second sterilized catheter introduced. The temperature and pulse at this time were normal. After a second twenty-four hours the catheter was again changed with the same precautions as before. The patient now had weak uterine contractions at long intervals and began to develop a temperature. Twenty-two hours after the introduction of the third catheter and seventy hours from the time of introduction

of the first, the contractions became stronger and more frequent and the os began to dilate. After seventy-eight hours the os was completely dilated and four hours later, or eighty-two hours from the beginning of the operation, a dead fœtus of between four and five months was expelled. The hæmorrhage was very slight although the placenta was retained. The cord ruptured upon an attempt to remove it by Credé's method. All efforts to induce expulsion of the afterbirth by ordinary methods being futile, thirty-two hours after the birth of the fœtus the patient was removed to the operating room, anesthetized, douched thoroughly, dilators, placental forceps and curette employed, but without avail, the placenta evidently hiding behind the tumor. The expectant plan of treatment, consequently, had to be pursued.

As the temperature steadily increased and now remained in the neighborhood of 102° to 104° F., vaginal douches were increased in frequency and intrauterine douches added. A copious and offensive discharge of bloody mucous now came from the uterus and the patient was harassed with exhausting uterine pains. Four days after the birth of the fœtus the placenta, much twisted and misshapen, was expelled spontaneously. As the discharge from the uterus now changed to pus of a peculiar gray color and a most offensive odor, and the temperature still remained very high, intrauterine douches were increased to five a day, whereupon she seemed to rally

somewhat. Soon, however, she lapsed into her former state, the discharge becoming more copious than ever and having the fœtor of putrefaction. The temperature varied from 100° to 103° , the pulse ranged from 100 to 120. She lost strength rapidly, had chills, followed by high temperature and sweats. A septic diarrhœa and an increase in the discharge of the uterus showed the inefficiency of the treatment. Although intrauterine douches were given three times daily there seemed to be a pus cavity which could not be reached with the metal irrigator. An English catheter was therefore substituted, and after many attempts to find the orifice of the pus cavity the catheter suddenly passed four inches further than the metal irrigator. It was left in situ and douches were now given through the catheter every two hours and victory seemed secure, but the irritation and pain caused by the catheter were so intense that this plan of treatment had to be abandoned. The uterus was now irrigated three times a day, the mysterious little opening was found with much trouble, the cavity thoroughly washed out.

This was the treatment for about a week, when the septic symptoms seemed to be abating. The temperature now ranged from 100° to 101.5° , she became stronger and more hopeful, but still the quantity of pus did not decrease. At this time a new manifestation of the disease presented itself. She complained of much pain and tenderness over the tumor, fluctuation became more

marked every day, and to all appearances there seemed to be an abscess. In order to evacuate the pus, the patient was anesthetized and an incision was made in the upper part of the right lumbar region, about two inches to the right and below the umbilicus. The escaping pus was very offensive and a gray boggy mass presented, which I at first thought to be thickened and inflammatory omentum, forming a part of the wall of the abscess cavity. A counter opening was made about two inches above the crest of the ilium and a large size rubber drainage tube drawn through, which can be seen in the photograph. The patient was now in a very critical condition, the fever ranging in the neighborhood of 102° F., pulse 120, her reserve strength was nearly exhausted and the stomach very irritable.

After the incisions were made and drainage established as just described, the wound was dressed daily, the dressings being saturated with a very foul discharge. Intrauterine douches were still given with the uterine irrigator, which passed into the uterus for a distance of three inches, when an obstruction, not the fundus, was encountered. With a little manipulation, however, it passed in its entire length. About the fifth day, while irrigating the uterus, the fluid was observed to ooze from the incision, and this happened frequently during the following dressings. No matter how clean the parts were rendered at these daily flushings, in a few hours the vagina and bed would

again be bathed with this offensive discharge.

During the period of expectancy the patient's general condition slightly improved, although the pulse was rapid and weak, the temperature fluctuating from 101° to 103° F. The abdomen was markedly distended and tympanitic; temporary relief was obtained by enemata of warm water. The attachments of the boggy bulging mass were each day becoming less firm: a probe could be passed between it and the abdominal incision throughout its entire circumference, two inches in depth. It was observed daily that the mass presented itself more and more until it was about an inch above the surface of the abdomen. It now first dawned upon me that this was the gangrenous fibroid tumor delivering itself.

There was a great temptation to give a little assistance and extract the supposed fibroid through the incision we had made. Three weeks after the date of the incision, while lifting the tumor with vulsellum forceps and attempting to trim away the gangrenous portion, it suddenly slipped from its mooring and nature had completed the laparotomy with but very little surgical aid. The bed of the tumor was filled with healthy granulations, and a soft rubber catheter introduced into the uterus easily slipped in to its full extent, and presented at the opening from which the tumor had just been removed. The temperature soon fell to normal, the discharge ceased, and the tumor cavity granulated very rapidly. The patient left the hospital well and is now following her usual avocation.

A Few Suggestions from Practical Observations in Obstetrics. A Review.*

FRANKLIN STAPLES, M. D.

WINONA, MINN.

I HAVE at hand the memoranda of few conclusions drawn from the one thousand and ninety-two obstetric cases, observed by me in private practice in the city of Winona, Minnesota, and the vicinity, between the years 1862 and 1895 inclusive.

The record of cases is not so complete as to enable me to furnish accurate statistics on many points. A

In nationality of parents, the number of English and Scotch Americans, and of Germans and German Americans were about equal: Irish and Irish Americans were about ten per cent.; Scandinavians were about seven

Read before the Southern Minnesota Medical Association, Aug. 1, 1895.

She came to town for the confinement when I first saw her, in order that she might be delivered of a live child. The presentation was the breech as before. With a little assistance the head was delivered at the right time with the child alive. Later, another labor with the same condition and result occurred.

Concerning delivery in case of pelvis narrowed in the conjugate diameter—the flat pelvis.

The head fails to engage in the superior strait because of the narrowness of the same:—The question of procedure.

In 1875 an earnest discussion of this question was had in the Philadelphia Obstetrical Society, by the elder Dr. Hodge, in a paper prepared shortly before his death, taken up by his son, H. Lenox Hodge, and by Dr. Ellward Wilson on the one side, and by Dr. William Goodell and Dr. R. Stewart on the other, all of Philadelphia. The use of the forceps in such cases, compression of the foetal head by the cephalotribe, craniotomy, and delivery by version, each of these and other procedures had their place in the bill of ways and means.

The American Journal of Obstetrics, in several numbers of the volumes for 1875 and 1876, has the papers of this discussion. It is a literature of the subject worth the reading. The Drs. Hodge and Wilson for the most part favored the forceps and cephalic delivery. Dr. Goodell was the strong advocate of version, and Dr. Stewart took intermediate grounds. Dr. Goodell con-

cludes with the following general propositions:

1. Turning should generally be preferred to the lashing of the forceps handles.

2. In pelves uniformly contracted the forceps is the better means of delivery.

3. In pelves narrowed in the conjugate diameter, turning should be resorted to, whenever a half hour's faithful trial with the forceps fails to make the head engage.

4. In pelves whose conjugates range from 2.75 to 3.25 inches, turning should be the initial step.

Grandin and Jarman have given the rule that the forceps should not be applied until the head has engaged. This being correct, the question of procedure in these cases seems to be settled by this authority as far as the use of the forceps is concerned. With the present revival of symphysectomy this operation might possibly have place as a proper procedure, and in these days of asepsis, the Cæsarean section may sometimes be admissible.

A case: In the record of January, 1869, is the case of Mrs. H., German, aged thirty, in general good health and strength, now in second confinement. Had been in labor several hours, the liquor amnii had all escaped, the uterus contracted on the child, the uterine tumor prominent above symphysis pubis, head not engaged, reached with difficulty, position transverse; antero-posterior narrowing.

I was informed that at the previous labor forceps delivery had been at-

tempted, delivery accomplished by craniotomy, much time required, with some injury to mother. I succeeded in turning and delivering with considerable difficulty, on account of contracted uterus and dryness of the parts—child dead—no harm to mother. I impressed upon my patient the necessity of early attendance in her case in future labors. I saw her in due time in her third confinement, found condition as before, except that the membranes had not ruptured, the os fairly dilated: delivered by version without much difficulty—child alive, and all well. The fourth confinement was a repetition of the third in all respects. The patient moved to Milwaukee, taking with her a written programme for the conduct of future labors, and was afterwards heard from favorably.

In the matter of what we may call the present advanced work in the technique of obstetric surgery, I can do no better than to quote briefly from the work of Drs. Grandin and Jarman recently published in Philadelphia. The author says: "It is only within the last decade that obstetric surgery has progressed toward the scientific eminence to which it may justly lay claim to-day." After speaking of the former dangers of the so-called child-bed fever, he remarks: "To-day the scene has radically changed. Septicæmia after labor is justly considered as due, in almost every instance, to faulty asepsis: gradually bettering attempts are being made to educate the student with a practical knowledge of the entire

range of obstetric surgery, and extra stress is being laid, as it should be, upon the absolute necessity of studying the pelvis of the pregnant woman before the advent of labor, so as to be in the position to take advantage of that operative procedure, where any is indicated, which is best not alone for the woman, but which also takes into account the welfare of the child."

In this the author suggests the importance of the physician having such foreknowledge of the patient's condition as will enable him to successfully guard against possible danger. As an illustration of the advantage of such knowledge, suppose the possible existence of albuminuria in the case of pregnancy, with the probability of uremic poisoning, eclampsia, and the risk of death to mother or child or both. A foreknowledge may save all. In these cases the condition being discovered early, the indication for treatment is plain and the result may be favorable. The late J. Adams Allen, of Rush Medical College, had three principles to be observed in the treatment of disease. The same word was given for each of the three, with emphasis increased from first to last; it was "eliminate." This treatment in threatened uremic poisoning is the fulfillment of the law. It means, remove from the body, by the intestinal and other excretions, the elements of poison, but the condition tending to this should be detected early.

While, in the presence of convulsions, chloroform is available for

changing the character of contractions and diminishing the irritability of nerve centres, the immediate indication is to relieve the uterus of its contents by such artificial aid as, in the case, may be best applied.

I am not able to give from my record the number of cases in which eclampsia occurred either in pregnancy or post partem. The proportion, I think, was larger in the primipara than in others, and albumin was found in all examined save one.

A case: Mrs. P., American, age twenty-one, rather fleshy—some œdema—albumen—supposed to be past eight months—first pregnancy. A convulsion was the first sign of labor—convulsions now severe and frequent—mind not quite clear between attacks—slight uterine pains—no dilatations. I had the assistance of a competent physician. Chloroform was carefully given—cervix slowly dilated by fingers and hand—pains increase and become effective. When able to pass the clenched hand through the cervix, ruptured the membranes, and delivered by version—child alive—no post partem convulsions. Albumen gradually became less—convalescence required time. Salines and iron were given; nitroglycerine had not then been used. A result so favorable as in this case cannot always be had.

The opportunity of having a knowledge of the condition of the patient, during the pregnancy as well as at the time of labor, is known to be more common in the larger city practice, but this need not be so, and

where it is it may not be altogether from fault of the patient. The educated physician has the privilege and duty of the teacher in the families of his charge, and his efforts as such, properly directed, will be appreciated. It is well to know that our province, our art and our duty, is more than that which pertains in the law of commerce and trade.

“While, then,” says the author above quoted, “more accurate educational methods enter as factors into the science of obstetrics as practiced to-day, the fundamental reason why the mortality rate has been lowered, is the recognition of the culpability of the man who neglects the law of cleanliness (asepsis and antisepsis) throughout the conduct of labor and the puerperal state. Obstetric asepsis is secured through attention to the person of the accoucheur, the nurse and assistants, the lying-in woman, the instruments and accessories.” It has been said, and that truly, that “aseptic and elective obstetrics rob labor of its terrors and the puerperal state of well nigh its sole risk.”

I may not here mention all that asepsis requires in the accoucheur, the patient and the accessories. The physician of to-day is supposed to have made himself familiar with these things in obstetric work as well as in surgery. If he has not, and has not the disposition to do so, the better and cleaner professional world will have no place for him in the near future.

The Anæsthetic: For obstetrics, chloroform has been my anæsthetic;

for use in general surgery, ether. In the former, complete and prolonged anæsthesia is not required or admissible. The chloroform, for the lighter degree of anæsthesia, is more easily

managed and more agreeable to the patient. In the use of the anæsthetic there should be careful election as to the time of administration, the degree of anæsthesia, and the continuance.

Antiseptic and Aseptic Midwifery in Private Practice.*

FRANCIS H. STUART, A. M., M. D.

Obstetrician to the Brooklyn Hospital, U. S. A.

BEFORE the days of antiseptics the mortality in lying-in hospitals was so excessive that the International Medical Congress of Physicians and Surgeons, at its session held in Brussels about twenty years ago, recommended that all such institutions should be closed. Their dangers were greater than their benefits. At the present time a well-conducted lying-in hospital is a far safer place for a woman to be confined in than the majority of even well-appointed homes. This fact becomes still more significant when we remember that as a rule patients in public institutions come from most unsanitary conditions, both personal and domiciliary. The reduction of the mortality as well as morbidity in such institutions promptly followed the introduction of anti- and aseptic procedures.

If, on the other hand, we examine

the returns from abortions and confinements in private homes during the past two decades, we find that there has been very little reduction in the rate of mortality and morbidity. From this fact, even if it were not confirmed by observation, there is but one conclusion to be drawn, namely, that outside of public institutions less attention is paid to the prevention of septic diseases in puerperal women than in them. This leads me to ask two questions:—First. Is it more difficult to secure an aseptic condition of the patient and her surroundings in a private home than it is in a maternity hospital? Second. Does the average practitioner of obstetrics fail to make the endeavour to secure an aseptic condition of his patient and her surroundings? I think both questions may be answered with an emphatic *Yes*.

Recognizing the difficulties, what *may* the obstetrician do,—what *should* he be expected to do,—to secure to even his poorest patient in private practice the advantages enjoyed by

*Prepared for the meeting of the British Medical Association, held in London, July 30—Aug. 2, 1895, and presented in substance in the discussion of the paper, "On Aseptic and Antiseptic Precautions necessary for the prevention of Puerperal Fever in Private Practice."

those of her sisters who are confined in public institutions?

So far as the person of the private patient is concerned, the field of operation may be made as aseptic as the same field in a public hospital. The bed may be made clean; and all the accessories of the accouchment—the sheets, blankets, pillow-cases, absorbent pad for the bed, vulva guards, napkins, etc.—may be made and kept as aseptic as is possible in any maternity hospital. In all but the most crowded homes the room may be made clean and sweet. The room should be the best one in the house. It should be as carefully prepared as it would be for a case of serious surgical operation. Useless and dust-collecting furnishings should be removed and its walls carefully cleaned and dusted. In short, in midwifery cases we may do exactly what is now done in all good surgical practice: we may give careful thought to the most minute details *before* the time of confinement, and then conduct the delivery with every attention to the rules of aseptic procedure, so thoroughly understood and so carefully carried out in all well-regulated hospitals.

It is a melancholy fact that, as a rule, the lower classes seem to make little or no effort to be clean. They accept the condition of poverty as if it were inseparable from one of untidiness in all its gradations down to absolute filth. They ignore the dictum of the apostle that cleanliness is next to godliness. In these homes it is most difficult to secure and maintain even a comparatively aseptic

field of operation and surroundings. But even here very much may be done to better the conditions that usually prevail; and to what extent this is possible depends chiefly upon the obstetrician.

Hence I may put the second question thus: How may the average obstetrician practice aseptic midwifery? If he has had a surgical training in a hospital, or if he has given attention to bacteriology, he has become so alive to the possible sources of danger that he will endeavor to secure the co-operation of his patient and the nurse in preparing for the hour of delivery, so that when he is called to attend the confinement he shall find his patient and all about her in readiness, as does the surgeon when he goes to perform the appointed operation. Upon the obstetrician must devolve the labor of instructing nurses and patients in aseptic technique. Where he employs the same set of nurses in most of his cases he soon can have them so well trained that he can leave to them all of the instruction as well as preparation of the patient. The nurse should be instructed as to her dress, the dangers of carrying infection from house to house, especially by clothing that has been laid aside for a time after having been used in attending upon infectious cases. Most important of all the obstetrician must himself have a record like that of the village clergyman, who

“—— tried each art, reproved each
dull delay,
Allured to brighter worlds, and led the
way.”

He must of course be thoroughly imbued with the principles of aseptic technique. If any faith is to be placed in the methods of antisepsis the obstetrician can safely practice both surgery and obstetrics. But he must not neglect the small details, which are the links that make the chain strong. By precept and example he may bring his patients and his nurses to observe the same precautions that are practiced in the most carefully managed maternity hospitals. Permit me to present as concisely as possible some rules of asepsis for the guidance of patients and nurses in obstetric practice in private homes.

The patient should keep her person clean by frequent full bathing, and should be instructed to take such bath at the first indication of the approach of labor. She should have ready a suit of clothes which shall have been carefully laundered and then kept by itself, so that nothing soiled can come in contact with it. She should be taught to distinguish between what is apparently clean and what is "surgically clean."

She should be told to have the bed-linen changed throughout, and the bed carefully made up for the delivery. It is advisable to have a set of bed-clothes assorted and kept in readiness so that no mistake may be made when labor begins. With the bed-linen proper should be kept the supply of napkins, towels, draw-sheets, bed-pad for receiving the discharges, and a supply of squares of cheese-cloth for washing the patient and infant.

These latter are to substitute the sponges which formerly were almost universally used, but which should be banished entirely from the lying-in and puerperal room. Vulva pads may be made with absorbent cotton enclosed in boiled cheese-cloth. Of these there should be an abundant supply, say four or five dozens. There should be two pieces of rubber sheeting, one to be placed immediately over the mattress and the other under the labor pad, so that the discharges will not soil the sheet. Instructions should be given both to the patient and the nurse beforehand exactly how to prepare the bed. It is well to give these instructions in writing and supplement them with oral explanations. One can never err by being too explicit.

To complete the outfit for confinement, which the patient should have ready, I may mention the following: a four-quart douche-bag, with a glass nozzle; a douche pan; four ounces of solution of green soap; three twelve-inch papier-mache basins; a dozen tablets of bichloride of mercury for making antiseptic solution for the hands and obstetric field; two ounces of fluid, pure carbolic acid; or the same amount of pheno-salyl (I much prefer the latter, and use it exclusively); two ounces of carbolized vaseline, or eucalyptus oil and vaseline, one to seven; a sterilized nail-brush; eight ounces of alcohol; powders of dried sodium carbonate and sodium chloride, 2.5 and 7.5 parts respectively per thousand, which is the formula for Tavel's solution. It

is well also to give instructions to have an abundant supply of *boiled* water, as well as of boiling water. The former may be prepared days before, provided it is boiled and cooled two or three successive times and finally sealed in a large bottle, holding two or three gallons.

This may seem to be a formidable array of material, but there are few patients who will not gladly co-operate with the attendant when the object of such careful and elaborate preparations is explained to them. And it is in reality not much in excess of what is usually provided, except that it is to be prescribed by the physician, and not left to the haphazard advice of the relatives and friends.

With the onset of labor the patient should not only take a full bath, but she should especially scrub the genitals, lower abdomen, and the thighs. She should take a rectal enema, repeated if necessary, so as thoroughly to wash out the rectum. Then a vaginal douche of the Tavel's solution, to which is added one per cent of pheno-salyl, should be given. If the pubic hair is long it should be clipped short. It is not necessary to shave the pubis, as is done for gynaecological surgery. After the rectal and vaginal douche the vulva and adjacent parts should be carefully sponged with a one to two thousand solution of bichloride of mercury and then with alcohol. If there is leucorrhœa, or should there be discharges from the rectum, the sponging should be repeated from time to time.

The rules governing the conduct of the obstetrician are few and simple. He should never go to an obstetric case without clean linen. At the bedside his clothes should be protected by an apron improvised from a folded sheet; his hands and forearms should be rendered aseptic by the Fürbringer or Permanganate of Potash method; he should perfect himself in making diagnosis by abdominal palpation, so that he may restrict the internal or vaginal examinations so far as possible. I cannot endorse the suggestion that no internal examination at all be made; for not only are serious mistakes likely to happen, but the obstetrician misses that education of the touch which is essential for every medical man to have. Still he should keep in mind the fact that labor is a natural process, and that in most cases he has only to watch and wait. By abstaining from too frequent examinations and other interference he is protecting his patient from the chief source of danger to her, the introduction of germs from his own person or her surroundings. The vaginal secretion, as has been demonstrated by Döderlein, is antipathogenic when in its normal acid condition. For this reason frequent douching of the vagina is harmful, and even a single douche at the beginning of labor might be dispensed with, although given as described above it is probably a prophylactic.

It is only for the sake of completeness that I refer in this presence to the sterilization of instruments, when it is necessary to employ them. The

easiest and at the same time the most effective way is to boil them. The addition of the solution of green soap, an ounce to the gallon, is better than the one per cent. solution of soda. Instruments thus treated are kept bright and free from any spots. It is convenient and advantageous to keep instruments sterilized, wrapped in sterilized towels, and then wrapped in thick, clean paper. It is desirable to conduct all obstetric operations in an aseptic, rather than an antiseptic manner. After the delivery, whether natural or artificial, no douching of the uterus is required, nor even of the vagina, except in rare instances, where there may be a dead foetus, or other contaminating condition.

During the puerperium, in cases

which pursue a normal course, all precautions are comprehended in the simple rule of absolute external cleanliness. The vulva guards should be renewed every two or three hours during the first two days, then at longer intervals as the lochia become less profuse. The rise of temperature which is not uncommon from the third to the sixth day, especially in cases where the uterus does not contract firmly and remain firmly contracted, I have found to be controlled by the administration three times a day of twenty minims of fluid extract of ergot and five minims of tincture of nux vomica. If the lochia become offensive a douche of simple boiled water at a temperature of 105 degrees Fahrenheit is sufficient.

A Review of the Pathology of Dysmenorrhœa.

G. C. EGGERS, JR., M. D.,

ST. LOUIS, MO.

It has been stated by Currier that the function of menstruation has been developed in women as a result of civilization, but it seems more reasonable to consider it as a higher type of a function associated with the reproductive system and observed in almost every variety of animals. Thus, the females of certain insects exhibit decided changes of color during the breeding season: in reptiles and fishes, the period in which the eggs are deposited is marked by nervous

excitement and hyperemia of the orifices of the generative canal; tortoises exhale an odor of musk, and lizards and snakes secrete an odorous fatty liquid when the sexual appetite is aroused. Ascending the scale, we find the sexual appetite is aroused with a more marked periodicity, and is accompanied by more or less discharge from the genital passages, in which the sanguineous element increases the higher we ascend in the scale of animal life. With animals

having hollow uteri, the external hæmorrhage is less profuse than in those in which the uterus is thick and nearly solid: so that, while the transudation into the uteri of bitches, sows and cats may be quite abundant, the external hæmorrhage is quite insignificant. In the anthropoid apes, in which the uterus quite closely resembles that of the human females, the external hæmorrhage is quite similar to that of women. It would therefore seem proper to conclude that menstruation does not originate in civilization, but in a physical law of very general application; that normally, it implies a flow of blood by way of the genitals, unaccompanied with pain sufficient to relieve congestion, but not enough to cause weakness or exhaustion."

Women as a rule, are very impressionable to nervous phenomena: these manifestations occur as spasmodic seizures and convulsive attacks, sometimes with complete loss of consciousness, or variable degrees of paralysis.

Dysmenorrhœa is a potent factor in the etiology of many of these troubles. The brain is in physiological sympathy with many of the organs of the body, and has special correspondence with them by inter-nuncial nerve-fibres, so that its functions habitually feel the influence of the different organs, producing those neurotic conditions which are peculiar, and which are so familiar to the average practitioner, and which are so hard to combat. When the reproductive organs of women come into activity, there is a complete mental

revolution—a great change takes place, and when menstruation is established, unless it is normal there is a change which is correspondingly abnormal; particularly is this the case if dysmenorrhœa results.

A disregard of the function of the female organization in the manner of educating girls is a factor in producing this trouble in very many cases.

Irregularity occurs in consequence of the demand made upon the vital powers at times when there should rightly be an intermission or remission of labor, and is followed by pallor, lassitude, debility, sleeplessness, headaches, neurgia, and finally by worse ills. The girl enters school or college at the age when, perhaps, the function of her sex has been fairly established, ambitious, she pursues her studies with perseverance and constancy, takes no relaxation or rest, goes on with ever increasing diligence, pays no attention to the periodical wave of her organization, unheeds the drain on the system, gains the front rank, and by assiduity, holds it. Nature, which cannot be ignored or defied with impunity, asserts its powers: health fails; the girl becomes the victim of aches and pains, is unable to go on with her work, and seeks medical advice. She does not easily regain the vital energy which was recklessly thrown away.

The special function which have relation to her future offices as a woman have been deanged at a critical period. She is apt to suffer from a variety of serious and troublesome disorders: dysmenorrhœa being

one of them, nervous exhaustion also follows. The nerve-centers are unstable, and nervous symptoms are at times produced in women who suffer from dysmenorrhœa, which simulate the condition so often seen in the gravid constitution, namely, a tendency to hæmorrhage, with disorder of the movement of the voluntary muscles.

Many women are very nervous and irritable at the menstrual period. Dysmenorrhœa is often accompanied by hysterical conditions which sometimes pass into insanity. This insanity often presents traces of its origin in its general hysterical character, and in certain morbid conceptions. Suicidal mania sometimes occurs at the period when the pain is most severe.

In the hysterical conditions produced by the dysmenorrhœa, there is nearly always present a hyperæsthesia of one or more parts; for instance, the tactile sensation is augmented, the slightest touch of the skin may cause pain. Some patients are unable to comb their hair on account of hair-ache. The joints are, at times, hyperæsthetic and very painful. Toothache and neuralgia of various nerves are often noticed. This condition may be classed as a "neurosis." The symptoms, being coupled with nervous actions by reflex action, neurasthenia is produced, as well as other manifestations of neurotic trouble.

The life of women is characterized by marked periodicity; by ebbs and floods, by great life waves, which are

paramount in the line of her special functions; waves of vascular tension and nervous excitement, showing an increased activity and susceptibility of her being, indicating that the periodical activity is not a local process, as we have been taught, but one involving the whole organism and exerting a permanent influence upon that organism of whose condition and development it is indicative. The menstrual function involves the entire vascular and nervous system, and may be called the central exchange of the great network of wires—the vaso-motor nerves, the great sympathetic connecting it with the brain and spinal cord and with every part of the system.

The many manifestations of the neurotic troubles which we find in women can be attributed to a want of resistance on the part of the vaso-motor nervous system.

Neurasthenia is a fashionable neurosis at this time, and appears in various remarkable forms. It is an irritable weakness of the nervous system in a marked degree, but anatomically it seems to have no bearing.

Dysmenorrhœa is menstruation, preceded and accompanied by acute and often lancinating pains in the uterus and adjacent parts. Usually there is a derangement of the secretive function; the catamenia being often scanty in quantity, though not invariably so; frequently clotted, shreddy or membranous. Mary Putnam Jacobi tells us—"there is an increase of temperature of from 0.01

having hollow uteri, the external hæmorrhage is less profuse than in those in which the uterus is thick and nearly solid: so that, while the transudation into the uteri of bitches, sows and cats may be quite abundant, the external hæmorrhage is quite insignificant. In the anthropoid apes, in which the uterus quite closely resembles that of the human females, the external hæmorrhage is quite similar to that of women. It would therefore seem proper to conclude that menstruation does not originate in civilization, but in a physical law of very general application: that normally, it implies a flow of blood by way of the genitals, unaccompanied with pain sufficient to relieve congestion, but not enough to cause weakness or exhaustion."

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degree to 0.8 degrees F. and it does not reach the normal until the cessation of all external symptoms."

Dysmenorrhœa is a common disease, and causes intense suffering. Malignant and fatal diseases sometimes follow its long continuance, if it is not confined to one class of females. The single as well as the married are its subjects: the rich as well as the poor: although it usually prevails to a greater extent among women of irritable temper and of delicate and strumous constitutions, yet it is found among all sorts and conditions.

Dysmenorrhœa may be divided into three forms.

1. Spasmodic Dysmenorrhœa.
2. Membranous Dysmenorrhœa.
3. Dysmenorrhœa which is produced by some trouble of the ovaries, rubes, endometrium, etc.

Spasmodic dysmenorrhœa is produced by pathological ante flexion, and also by stenosis of the cervix, which is often caused by cicatrisation after labor, or application of caustics.

The cause of the dysmenorrhœal pain is evident. The menstrual blood is poured out into the cavity of the womb: the contracted condition of the outlet prevents its escape: it coagulates; the coagula excite uterine contractions which are accompanied with pain, hence the menstrual blood is usually discharged as clots. Other pathological conditions, as endometritis, arise secondarily, and the monthly congestion of the tissue, thus diseased, will also produce pain.

Dysmenorrhœa, produced by ante-

flexion, is called "uterine" by one writer, and he says the pain is not marked until the flow is established, and that it continues as long as the discharge continues.

Fritsch objects to the theory that the bending of the lumen of the canal on itself in ante flexion, producing a mechanical obstruction to the menstrual flow, is the cause of the pain, but says: "We know that the mucous membrane is greatly swollen and the uterus thickened during menstruation, the resistance of the uterus against the thickening and swelling, as well as against the hyperæmic condition generally, causes contraction and sensitiveness. As soon as the hæmorrhage is established, *i. e.*, the swelling of the mucosa falls, the pains, of course, diminish. A fixed uterus decidedly will oppose much greater difficulties than a normal one to the thickening of the mucosa and the uniform expansion. Should the uterus be lax, like one previously impregnated, the expansion of the organ by the swelling mucosa will, of course, be easy, and hence the dysmenorrhœa must cease after childbirth." If this explanation be valid for uncomplicated cases, *i. e.*, such as are free from any inflammation in or about the uterus, the complicated cases can be understood still more easily. During existing inflammation or inflammatory irritation of the uterine nerves, in perimetritis, etc., the menstrual congestion will and must cause an exacerbation.

A process completed painlessly and physiologically in the normal uterus

will cause symptoms and run a pathological course in the diseased organ.

The contractions in this form of dysmenorrhœa are clonic, *i. e.*, the come-and-go contractions like the pains of labor, the pain comes in pangs, in the severe forms the contractions not only affect the uterus, but may also affect the bladder and rectum, producing stranguary and tenesmus.

The tonic variety of the contractions is found in the membranous form of this disease, then the contractions are almost unceasing.

MEMBRANEOUS DYSMENORRHEA.

In this affection, at every menstruation the entire superficial layer of the mucous membrane becomes detached, and is expelled with intense labor-like pains. It is cast off in shreds of membrane. There is intense uterine pain, with a sensation as though some foreign body were shut up in the uterine cavity, and in the attempts at its expulsion the uterus is aided by the voluntary as well as involuntary efforts. The paroxysms occur as in labor, but in dysmenorrhœa there is no interval of repose. Incessant restlessness comes on, the patient looks anxious and pale, and frequently attempts to micturate, and, as the contraction of the bladder is evacuating the urine, she uses all her power in the vain endeavor to expel a clot or portion of membrane. The membrane sometime comes away in one piece—the shape of the uterine cavity. In these cases there is seldom any evidence of

inflammatory trouble about the uterus itself. Skene says: “In this affection where there is exfoliation of the decidua, the membrane expelled is a normal product of the uterus, which is pathological, because it occurs in the absence of pregnancy. The membrane expelled in this abnormal form of menstruation is the same in character as the normal decidua of utero-gestation. Taking this one fact regarding the decidua of pregnancy, and the character of the decidua of a normal menstruation, it is more than probable that this menstrual decidua is the product of a heightened or excessive physiological process, which occurs out of time and out of season. It is also very valuable evidence against the theory entertained by some, that this membrane of menstruation is the product of inflammation. If we exclude inflammation as a factor in the production of this derangement of menstruation, we can accept the fact that it is due to some abnormal excitation of the sexual organs, ovarian in all probability.”

Skene excludes inflammation. On the other hand, the membrane produced in this form of dysmenorrhœa has been likened to the membrane that is found in the trachea in croup, the intestines in dysentery (at times), and the urethra under certain inflammatory conditions; if this theory holds good there must be some inflammatory action, as the product of inflammation are present and the lining membrane of these organs is the seat of the diseased action. It is said the uterus presents a precisely an-

alogous condition in dysmenorrhœa, and hence we infer that its mucous lining is in a similar condition.

Dysmenorrhœa, which is produced by other causes, ovarian, tubal, etc., has many symptoms analogous to the other two forms: the beginning of a fibroid in the muscular tissue, as well as any abnormal or morbid condition of the womb, will sometimes be the source of the trouble.

Infantile uterus (so called) or congenital stenosis, due to lack of development, may produce dysmenorrhœa. We know nothing at all, as a matter of fact, of the real cause of this disease. We know there are certain pathological conditions, but how they cause the pain is not yet settled.

Some women at their periods suffer great pain in the uterine region, which may occur just before or just after the flow begins, and lasts a longer or shorter period. Some patients, I know, do not suffer at all until the flow has made its appearance, except to feel a sense of fatigue or lassitude a day or two before. The mammae in many cases swell and are painful, but shortly after the flow starts many of these cases suffer the most intolerable agony for a few hours, some as long as a whole day, unless mitigated by some anodyne. The prominent symptom in all cases of dysmenorrhœa, is the severe pain which demands relief, and which, in nearly every instance, is mitigated by the use of whiskey or morphia, both of which are very injurious. Now, we want a succedaneum for the whiskey and morphia, and this we find in

antikamnia. This has a happy effect in relieving the pain of dysmenorrhœa. It should be given in the onset, in ten grain doses, every hour or two. A most convenient form being the five grain tablets, crushed, and followed with a swallow of water.

Hobbies have been the prevailing idea in the past in the mechanical and surgical treatment of this trouble. Ambition often defeats its own aims by excessive zeal, and by the abuse of a useful procedure, bring opprobrium upon such practices. Theories of yesterday are superstitions of tomorrow, and are cherished as curious antiquities. Medicine revolves in cycles; brings out old ideas from the dust of ages, and then relegate them to oblivion.

Goodell's method of rapid dilation of the cervical canal in many cases is safe and efficacious. The introduction of the intra-uterine stem, slow dilation with tents, either of sponge or laminaria, cutting of the cervix, each and all are needed at times in the various cases and give good results.

Neftel has been treating dysmenorrhœa with galvanic current. He calls it "galvanization of the genito-spinal centre and of the splanchnic nerves."

Starting from the hypothesis that the beneficial results are mainly due to the action upon these parts, the anode is applied to the back over the lumbar region, and the cathode in the middle of the hypogastrium, just above the pubes: currents are changed to suit individual cases. He claims beneficial results.

Schwanda alternates the foradic and galvanic currents. Taylor places the cathode in the form of a metallic staff in the os uteri, and the anode upon the small of the back. Dixon Mann places the anode in the uterus (uterine electrode), and the cathode upon the lumbar spine stable for ten minutes, three times a week, during the inter-menstrual period.

Many of these conditions are now being relieved by the abdominal section, and Battey's operation performed. Every individual case of dysmenorrhœa is a law unto itself, but all have the need of an obtunder. This want is supplied by antikamnia, which should be given in ten grain doses. It can be repeated every thirty minutes, until three or four doses have been given. Quite a number of patients suffer three or four

days previous to the appearance of the flow, from headache and back-ache: these symptoms, together with many others of a neurotic type, are charmed away, so to speak, by the analgesic effect of this remedy. Every case of dysmenorrhœa does not require surgical interference. Many of them can be cured by internal medication.

Goodell says: "In a large number of cases of supposed, or of actual uterine disease, which display marked gastric disturbance, if the tongue be clean, the essential disease will be found to be neurotic, and must be treated as such; almost every supposed uterine case, characterized by excess of sensibility and by scantiness of will power, is essentially neurosis."

November, 1895.

Ovarian Cyst complicating Pregnancy. Report of a Case.*

R. ANNA BREED, M. D.

Mrs. G., age thirty years, a patient of Dr. Ida E. Richardson, married in February, 1890. Her menstrual period recurred regularly until December, 1890, when it did not appear. January also passed, but in February, 1891, a misstep resulted in violent pain and a flow which continued two weeks.

Her mother reported that at the beginning of this flow the patient

"lost a piece of flesh." This the doctor did not see, nor has the daughter any knowledge of it. From this time her menses returned at regular intervals: but as her size increased according to the law of the gravid uterus, the question was whether she had aborted in February, 1891, and conceived again, or was this increase the result of conception in September, 1890.

During this time there were no signs of pregnancy excepting the en-

* Read before the Alumna Medical Society of Philadelphia.

larging abdomen. The tension of the parts was so extreme that vaginal and rectal examination gave no result, excepting the presence of an enlarging mass.

Sept. 10, 1891. Dr. Richardson with Dr. Anna E. Broomall in consultation, examined under ether; but even the anæsthetic produced no relaxation, and the diagnosis remained uncertain.

In view of the possibility of a pregnancy having begun February, 1891 (17 months before), it was decided to wait until the nine months had elapsed before using a sound or making further investigation.

The next month, October, 1891, the patient again missed her period: this was followed by morning sickness and all the signs of pregnancy, in their normal order.

The diagnosis now seemed clear that the previous growth was an ovarian cyst: and that pregnancy existed dating from September, 1891. In due time, February, 1892, motion was felt. The patient was in excellent condition, and Drs. Richardson

and Broomall decided to let her go to full term: watching with greatest care, and having everything in readiness for operation should sudden need arise; an incubator being provided in case of a premature delivery, ether spontaneous or induced.

No such need arose however.

On July 1st the patient had pains, and the next morning, at 6.30, was delivered of a fine boy weighing seven and three-fourths pounds.

Excepting a slight laceration requiring three sutures the labor was normal. The lying-in was without event.

Three months later, Dr. Richardson, assisted by Dr. Broomall, opened the abdomen, removed a cyst of the right ovary, which, with the contained fluid, weighed 16 pounds. The left ovary and tube were found healthy and were left intact.

The patient's recovery from the operation was without incident. Her health has steadily improved up to the present time. The baby is now a fine boy of three years.

Pregnancy Complicated by Suppuration within the Pelvis, with Cases.*

H. MICHIE, M. B., C. M.

Surgeon to the Samaritan Hospital, Nottingham.

Through the kindness of our President, I have been induced to lay before you, I am afraid in somewhat disjointed form, comments on "Pregnancy complicated by Suppuration within the Pelvis," and to read to you notes of several cases that have come under my own notice bearing on the subject. This class of diseases, I cannot help thinking, has a more important connection than is usually supposed with that never-ending subject of discussion, puerperal fever. This idea was first suggested to my mind by some observations made before this Society some five years ago by Dr. Grigg on the "Influence of Pre-existing Inflammatory Disease on the Puerperium." You will find his remarks in the *British Gynaecological Journal* for February, 1891. And I think I shall be able to show to you that puerperal peritonitis sometimes, at least, has its origin in pre-existing disease of an inflammatory nature situated within the abdomen, and may be entirely independent of the introduction of septic material during labor or the lying-in period. For my own part I am inclined to think that it is, perhaps, now time to drop the term

"Puerperal fever," and to use a more definite term or description for the various conditions that give rise to fever in child-bed, just as the term "Surgical fever" has been to a large extent discarded, believing, as I do, that these two diseases, are produced by very similar, if not identical, causes. But lest I should tread upon dangerous ground, and get into difficulties from which I might not be able to extricate myself, I shall now go on to relate the various cases that illustrate my contention.

These are six in number, and divide themselves naturally into three groups. The first, perforation of the vermiform appendix giving rise to abscess extending into the pelvis; the second, suppurative peritonitis, in all probability having origin in a previously existing disease of the uterine appendages, and operated upon after delivery; the third, suppuration of the appendages, operated upon during pregnancy, *i. e.*, before delivery.

Of the first group I have met with only one instance, which occurred in a married woman of middle age, sent to me by Dr. Roberts, of Nottingham. She was four months pregnant. Ten days previous to my seeing her she had a sudden attack of severe pain and tenderness over the region of the

*Extracted from the *British Gynaecological Journal*, Part XLII.

cæcum, followed latter by swelling and moderate fever. On examination I found that, besides the swelling over the cæcum, there was fulness in the right posterior quarter of the pelvis, with an indistinct feeling of fluctuation. The temperature was 101° , the pulse 100. Altogether the patient looked in good condition for operation, and the next day I performed abdominal section, removing a perforated vermiform appendix, and a concretion which had escaped from the perforation and was lying at the bottom of an abscess cavity deep down in the pelvis. The abscess cavity was drained by means of an india rubber tube. Her recovery presented nothing noteworthy, and was complete in three weeks' time. She had a natural labor at the end of the ninth month, followed by an, in every way, easy and satisfactory convalescence. Had this complication arisen at, or near, the time of delivery it might readily have been overlooked, the occurrence of peritonitis attributed to the introduction of septic material from without, and the practitioner thereby accused of neglect in the use of proper antiseptic precautions.

Of the second group, where suppurative peritonitis has been set up shortly before or during delivery, and having its origin probably in pre-existing disease of the uterus or its appendages, I have come across two examples.

The first was that of a multipara, aged thirty-two, whom I was asked to see as a case of puerperal peritonitis

by Dr. Lamb, of Arnold, six days after her delivery at the eighth month. Five days before labor she had been seized with acute abdominal pain, quickly followed by tenderness all over the abdomen, the temperature being moderately raised and the pulse accelerated. With rest in bed these symptoms had in great measure subsided, till the time of her delivery, when they had again been greatly aggravated, and for twenty-four hours she had been extremely ill, but had then begun to rally slowly till the sixth day, when she became rapidly worse, and I was sent for. The abdomen was greatly distended, tender, and tympanitic, except in the flanks, where there was comparative dulness. In Douglas's pouch there was fulness with fluctuation. There was vomiting of acrid brownish fluid. The bowels were obstinately constipated. The temperature 102° , and pulse 128.

No time was lost, and on the same day I opened the abdomen, giving vent to two or three pints of thin offensive pus. The Fallopian tubes, containing pus which could be squeezed out at the fimbriated extremity, and the ovaries, which were soft, almost black and gangrenous-looking, and studded with numerous minute abscesses, were removed; the abdomen was flushed with plain warm water, and a glass drainage-tube inserted. Next day the temperature fell to 100° and the pulse to 112. On the fourth day an india rubber tube was substituted for the glass one. Recovery was rather slow, though uneventful.

Another and very similar example came under my notice two months later at Lenton. A primipara in the sixth month of pregnancy fell off a chair, the accident being followed next day by pain and tenderness in the abdomen. She was confined to bed till she miscarried, on the sixth day, when Dr. Heelis attended. He found the abdomen tympanitic, and so tender that he gave chloroform in order to complete the delivery. The patient becoming gradually worse, I was sent for three days afterwards. I then elicited the information that she had suffered from a profuse yellow discharge from the vagina the last five or six weeks. Except that she was extremely feeble and emaciated, with a temperature of 103° and pulse 136, her condition was in all respects very similar to that of the last case, and the treatment adopted the same, pus of a similar nature and quantity being evacuated; but owing partly to her condition, and partly to the fact that the appendages, though adherent to the neighboring structures, did not appear to be so much diseased, these were not interfered with. Her recovery was in every way satisfactory. She has since become pregnant, and expects to be confined two months hence.

Here, then, gentlemen, we have two examples of puerperal peritonitis having actually begun before delivery: in the first instance due to the existence of a pyosalpinx the cause of which, as so often happens, could not be definitely ascertained; in the second instance also due to pyosalpinx

produced by the spreading of a gonorrhœa through the uterus to the Fallopian tube, the escape into the peritoneal cavity being probably brought about by the accident.

Coming now to the third group, I have on three occasions operated for the relief of suppuration of the appendages during pregnancy: in two removing a pyosalpinx, and in one a suppurating ovarian cyst, the operation in this last case being performed during the progress of labor. The first was that of a young woman, whom I saw amongst my out-patients. She had ceased to menstruate four months before, and shortly afterward began to suffer from pain in the left iliac region, which was increased by exercise. Defæcation was painful. On making an examination I found the uterus enlarged, retroverted, and fixed, with a tender swelling situated behind and on the left side, most easily felt from the rectum. I diagnosed retroverted pregnant uterus complicated by either a hydrosalpinx or a pyosalpinx. I advised an operation, and she was admitted into the hospital. Three days later I removed the appendages from both sides; the left Fallopian tube containing pus, the right inflamed and thickened, but not otherwise diseased. The retroverted uterus, after separation of the adherent appendages on the left side, returned to its natural position. The operation was quite simple, there was no soiling of the peritoneum, and no drainage was employed. She recovered rapidly, and left the hospital at the end of fourteen days. Pregnancy

proceeded to term, and the labor was perfectly natural.

The next case, a multipara, aged forty, was the subject of peritonitis when she first came under my care. This poor woman stated that she was between four and five months pregnant, that she had had pain and uneasiness in the pelvis during the whole of that period, due, she believed, to gonorrhœa conveyed to her by her husband, whom I know to be one of the most degenerate brutes on this earth. The day before her visit to me he had, while in drink, kicked and otherwise ill-used her. I found on examining the abdomen that it was moderately distended, somewhat tympanitic, and extremely tender. There was fulness in Douglas's pouch, the uterus was enlarged to the size of a four or five months' pregnancy, and ballottement was very distinct. There was a profuse yellow discharge from the vagina. I considered that here there was strong evidence of the existence of suppuration within the pelvis: whether a suppurating ovarian cyst or a pyosalpinx I was unable to determine, but was inclined to believe from the general history that it was the latter. Owing to the urgency of the case, I, after explaining the serious nature of the disease, advised immediate operation as offering, in my opinion, the only chance of recovery. She, however, did not consent till four days later, when the operation was performed under greatly altered circumstances, the pulse having in the meantime risen from 98 to 128, and the other symptoms also

having correspondingly increased in intensity.

The pelvis contained about half-a-pint of sero-purulent fluid: the appendages on both sides were the subject of pyosalpinx, and were accordingly removed. After flushing with warm water I tried to secure drainage by means of an india rubber tube, as owing to the pregnancy a glass tube could not be inserted and retained in good position. For two days she seemed to be doing well, but on the third day miscarriage occurred, and soon afterwards all the signs of acute septic peritonitis became too evident, and she died on the sixth day.

In this case it is to be regretted that the reluctance of the patient to submit to operation allowed the earlier and therefore more favorable opportunity to pass. Even as it was, had I been able to devise some means of securing better drainage by a glass tube it seems to me possible that she might have recovered: for notwithstanding assertions to the contrary, the india rubber tube is, in my opinion, a most imperfect method of draining Douglas's pouch. But after all, gentlemen, one is naturally very ready to find excuses for one's failures and shortcomings.

The last case that I shall trouble you with is also, perhaps, the most interesting.

On October 5, three years ago, a young married woman was sent to me by Dr. Mackenzie, of Nottingham. She was twenty-two years of age, and the mother of two children, the youngest being born two and a

half years before. She had ceased to menstruate in the first week of May, shortly after which morning sickness came on, the breasts enlarged, and the abdomen increased in size. From the first week of August, being then three months pregnant, she had had, at irregular intervals, labor pains with discharge of blood from the vagina.

On examination the abdomen appeared to contain two tumors. The one on the right side was fixed, smooth in outline, extended to the level of umbilicus, and almost filled the pelvis. In the pelvic portion fluctuation could be felt. The other, on the left side, was movable, uniform, smooth in outline, and extended to within two fingers' breadth of the costal cartilages. At short intervals it became hard and prominent. Between the pelvic portion of the tumor on the right side and the pelvic wall there was barely sufficient room to admit the examining finger, which could feel close behind the pubis the os uteri dilated to the size of a florin, and a fetal head presenting, the membranes being unruptured. Pregnancy complicated by an ovarian tumor was diagnosed. The next day, being away from home, I did not see the patient, but the nurse reported that labor pains had become strong, and blood clots had been passed, that several rigors had occurred, and much sickness, the vomiting consisting of the ordinary contents of the stomach. The pulse had risen to 136, and the temperature to 103.6°.

When I saw her on the day following she was still in strong labor;

the pulse had risen to 156. The temperature was 103°. The abdomen was greatly distended; there was constant vomiting of brown sour-smelling and irritating fluid material; and her condition was extremely critical.

Under the circumstances it was evident that delivery by the natural means was impossible, and accordingly I decided to remove the obstruction by performing ovariectomy, and so allow the labor to proceed. The abdomen was opened in the middle line, and a right-sided, universally adherent, ovarian cyst containing fetid pus was removed. On account of the pregnant uterus no drainage was employed. The operation occupied fifteen minutes, and labor was completed four hours after.

In the evening distension increased, and persistent vomiting of black irritating fluid continued. A long glass drainage tube, reaching to the bottom of Douglas's pouch, was inserted, through which, however, there was very little discharge. Next day distension had still further increased, and the vomiting was incessant. Turpentine enemata was administered without effect. The stomach was washed out, after which the patient was much easier, and was free from sickness for the next twenty-four hours. On the 9th, two days after operation, there was a slight return of sickness, but the vomited matter was paler and less irritant. A turpentine enema acted well, and much flatus was passed. The pulse fell to 118, and the temperature to 99.2°. For the next three days improvement

continued, and as there was little discharge by the drainage tube, it was removed. On the 13th (six days after operation) distension came on again, the pulse rose to 180, and the temperature to 103° . Next day the drainage tube was re-inserted, through which a considerable quantity of sero-purulent fluid passed. The day following she was much better. Two days later the drainage-tube was finally removed, and recovery was not further interrupted. On November 9th (thirty-three days after the operation) she was discharged well.

In March of last year this patient returned to me, complaining of discomfort in the pelvis, and pain in the left iliac region. She suffered from dyspareunia and pain on defecation. Menstruation was normal. Behind and to the left of a retroverted uterus there was a tender movable swelling. This I afterwards removed by abdominal section, and found it to be the left ovary, cystic and enlarged to about three times its normal size. She made an uneventful recovery, and left for home fourteen days after the operation. It is worthy of note that by the time of the second operation all trace of peritoneal adhesions was to be seen, thus showing how easily these, when recent, at all events, entirely disappear.

With regard to this case the alternative of tapping or aspirating the cyst of course presented itself at the time of the first operation, but bearing in mind the fact that it was in all probability suppurating and adherent, and the chances of its being multi-locular, as it actually proved to be, it appeared to me that the removal of the cyst gave the best chances of a favorable result: for supposing that the obstruction to labor has been removed by tapping or aspirating the cyst, we should still have had a suppurating and septic sac left within the abdomen, not to mention the risks of escape of purulent material into the peritoneal cavity, either during that operation or during the passage of the fetus afterwards through the pelvis.

While, therefore, admitting, and believing, as I most certainly do, that in the immense majority of instances puerperal peritonitis arises from septic material introduced during or soon after delivery, and that, therefore, it is our duty to adopt the strictest aseptic or antiseptic precautions, these cases show that occasionally, at all events, it may originate in pre-existing conditions of an inflammatory nature, and be altogether independent of infection from without.

An Improved Perineal Retractor.

S. VALE GOLDTHWAIT, M. D.

Desiring my gynecological confreres and the profession in general to share in the benefit of a very convenient and helpful device which I have recently elaborated, I beg to call attention to a few points in reference to a new, self-retaining perineal retractor.

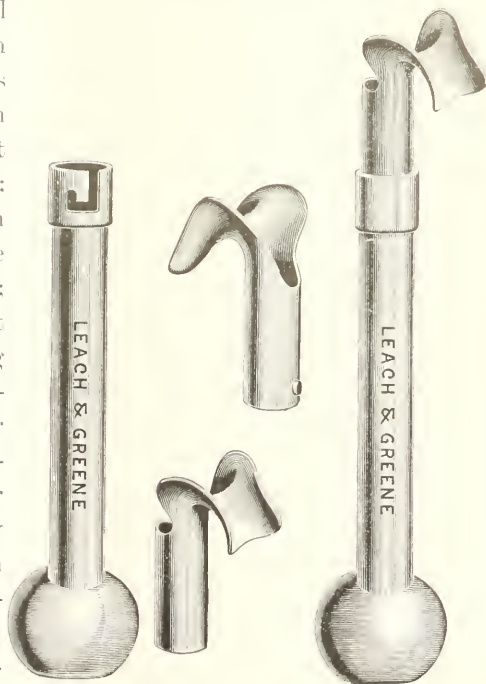
That so many excellent surgeons have endeavored to construct an instrument of this character is sufficient evidence of its need. That what has been so much desired is now accomplished, a practical test of this appliance will at once demonstrate.

After an extended use of the instrument in all varieties of vaginal surgery capable of performance in the dorsal posture, I can state as follows: It *will* retract the perineum in a perfectly efficient manner; it *will not* slack up, let go or fall out; it separates and spreads the vulva in a manner offering easy and free access to all intra-vaginal structures; its differently shaped blades permit of its use in contracted or roving vaginal—the narrow blade more suitable for nullipara, the wide, shorter one of more special value in trachelorraphy, plastic work on the anterior vaginal wall, in vaginal hysterectomy and also in the so-called “French operation” for the removal of diseased pelvic structures.

Its construction is such as to con-

form with all aseptic requirements. It serves as a conductor or drain for irrigating fluids, blood, clots and debris, thus keeping the field of operation clear and unobstructed, besides preventing the usual spattering and soiling of the surgeon. In short, it will efficiently fill the place of the trained assistant usually required for this special purpose, thereby rendering the operator an independent master of the situation, as well as saving him the additional trouble and expense.

A reference to the accompanying cut will serve to convey a fair idea of its principles and construction.



Its length is . . . 14 inches.

Caliber of tube . . 1 1-4 inches.

Diameter of base . . 3 inches.

Weight . . . 3 1-2 pounds.

(Incidentally it may be stated that the perineum will support a weight of sixty pounds without injury.)

As will be readily seen, the primal idea and general working principles embodied in this instrument were first demonstrated in the very useful lead speculum originated some years ago by Dr. E. W. Cushing. Perceiving that the general principle peculiar to his device were of great practical utility and value, I have sought to elaborate them in such a manner as to bring the instrument fully up to the requirements of the presentday. Also will be seen that the short blade is modelled after the so-called "Jones Retractor," and the narrower, wide flanged blade is a somewhat modified "Edebohls Speculum"—thus constituting a compilation, so to speak, of the ideas of several good and practical men.

My own contribution towards the instrument's present perfection consists in its improved form, shape, material, construction and finish; ample caliber of tube for drainage, exchangeable blades, bayonet lock for same, ball base of properly estimated weight, portability and conformity with aseptic demands.

Although but a few months before the profession, the instrument has met with instant acceptance at the hands of those who have given it a trial, and, for the benefit of those who, in reference to almost any new

contrivance or device, ask the dealer the very natural question: "Who uses it?" I will append the names and expressions of a few among the many excellent men whose standing and practical acquirements are such as to entitle their opinion to full confidence:—

Prof. E. W. Cushing says: "Your Perineal Retractor I am using with great satisfaction in place of my old lead speculum, which, at last, is worn out with much service. I find the weight none too great, and yet it is sufficient to retract the perineum; it also has the advantage that it can be thoroughly cleaned, and, of course, it is a convenience to have different shaped blades to suit different cases."

Dr. Wm. H. Baker says: "It is the best thing of the kind that I have yet seen, and can see that it would be a most useful instrument for surgeons who do most of their work in the dorsal position."

Prof. F. H. Davenport says: "I have used the instrument and found it very practical and convenient."

Dr. C. H. Hare says: "The Retractor I have of course used only a few times, but in those few it has certainly been satisfactory."

Prof. Maurice H. Richardson says: "I use it and like it."

Dr. Horace Packard says: "You are quite welcome to use my name as an endorsement of the practicability of your Retractor. I have used it in quite a large number of cases, and in many respects it seems to me the best adapted to its use of any yet devised."

It is also used with approval by Dr. Joseph Price of Philadelphia, and other eminent surgeons of that city, and also by the best men of Baltimore, besides many other good men of local repute not mentioned in the foregoing.

I have especially to thank Messrs. Leach & Greene for their painstaking skill in executing my wishes in regard to the many points of excellence in the construction of the Retractor.

Trachelorrhaphy.

C. W. RUSSELL, M. D.

SPRINGFIELD, O.

No operation has ever been devised that has contributed more to the welfare of women by the removal of reflex action than the repair for laceration of the cervix uteri.

This injury to the cervix is the source of ill health of a great number of our primipara. From thirty to forty per cent. of all parous women have laceration of the cervix more or less severe. Some, it is true, whose laceration is slight, will heal by primary union, while others, to the extent of sixteen to twenty per cent., will need surgical interference.

The degrees and varieties of laceration are variable. We have unilateral, bilateral and stellate lacerations. The most common laceration is the bilateral, which may be found mild or severe. The unilateral comes next, which is observed mostly on the left side. The other forms follow without any special regard to proportional frequency.

The causes of laceration of the cervix uteri may be attributed to the

four following sources: First, pathological condition of the uterus when nature does not give free dilatation at time of confinement; second, from rapid labor without the necessary time for complete dilatation of the os; thirdly, malposition of the child in its delivery; or fourthly, from the inexperienced or improper use of the forceps.

The most prominent pathological condition associated with lacerations are cellulitis, metritis, or salpingitis. The pernicious effects from cellulitis are quite extensive, involving as it may in its debris the ovaries, tubes, the mucous membrane of the uterus, an endometritis, and, if the septic condition is extensive, the connective tissues, as well as the peritoneum, may become involved. Erosion of the os externum is a sequence of laceration, and is invariably the cause of profuse cervical catarrh and leucorrhœa. This is produced and often aggravated by the rolling outwards, or eversion, of the two walls formed

by the laceration which brings the cervical mucous membrane against the vaginal walls, and in contact with the acid secretion of the vagina, thereby producing irritation. Consequently endometritis has no good will or tendency to disappear, but is kept fired up by this approximate irritation.

Subinvolution and hypertrophy of the uterus is an effect often associated with laceration by the forming in nature's repair a cicatricial plug, the tissues of which impinge the circulation. The nervous condition of women who have laceration is often produced by this hard cicatricial tissue pressing on the softer connecting tissues of the cervix, impinging upon the nerve filaments of the sympathetic system and communicating with the sensitive fibers of the cerebro-spinal system. From this source of nerve-irritation we have those distant localized pains of the body (reflexes) producing disturbances of the vital organs.

Menstrual irregularities and sterility are often produced and associated with laceration of the cervix uteri.

The diagnosis of laceration of the cervix uteri is easily made. We may, preparatory to our examination, suspect inferentially from the history presented, and if the subjective symptoms are such as to lead one to suspect laceration, a digital or speculum examination should be solicited. It is often the case that the woman who seeks the doctor for restoration of health has not suspected any lesion of the womb, even though she would have

extensive laceration, consequently she may go from doctor to doctor until she falls into the hands of a gynecologist, and then by the proper examination the true cause of her ills will be found.

The finger within the vagina and against the womb, you will observe first the enlarged or hypertrophied condition of the organ—the patulous or velvety feeling of the cervix: secondly, when the finger is pressed against the os, you will find it obliterated into a fissure or radiating fissures. This may be so extensive that it will admit the distal phalanx readily. Sometimes the laceration is obliterated by the outward rolling or eversion of the cervical canal and mucous membrane. Should the finger be so inexperienced as not to picture clearly the lesion of the cervix, then ocular inspection by means of a speculum will reveal the entire field and extent of the laceration.

The object we wish to retain in the repair of the laceration of the cervix uteri is a restoration to its normal condition. To accomplish this we denude and remove all the cicatricial tissue of the cervix formed by the healing of the re-united surfaces of the tear, thus relieving the complicated and pinched condition of the nerves which I have heretofore mentioned in this paper, and thus relieving the reflex nervous disturbances, re-establishing the circulation of the cervix, thereby lessening the hypertrophy and subinvolution of the uterus, protecting the cervical mucous membrane from further irritation, and lastly, placing

the womb in its normal physiological condition.

The operation and treatment to be successful must be carried out by a thoroughly aseptic precaution, and, to be scientific, must be based on correct pathology. I will, therefore, describe the preparatory treatment and operation which I find in my hands to be very successful.

We will assume a case from a fairly nourished woman who has a complete bilateral laceration. The patient should be kept on good nourishing diet, with proper attention to the action of the bowels, for at least a week prior to the operation: daily baths of the whole person should be intrusted to the patient. Should there be any indication of cellulitis it will be manifest by a tenderness on pressure in the fornices, in which case the patient is to use large hot-water vaginal injections, night and morning, for at least two weeks, or until all tenderness has disappeared. Owing to the hypertrophied and weighty condition of the uterus, it drags down the ligaments and connective tissue into the vagina, impeding and obstructing the circulation of the parts; consequently we have congestion and an extra discharge from the irritated surfaces. To overcome this and give access to cervical treatment I use the inflated soft-rubber ring. This keeps the eroded cervix from the vaginal walls. Should there be extensive erosion and the mucous follicles enlarged, a sharp-pointed tenatome should puncture the follicles, and the whole eroded surface painted with a

preparation of equal parts of tincture of iodine and beechwood creosote every third or fourth day. This mild escharotic we find very valuable in all ulcerated surfaces of the cervix.

The patient should, the day prior to the operation, take a dessert or table-spoonful of Epsom's salts to cleanse and wash out the bowels. This is deemed quite necessary in all pelvic or abdominal operations. At the time specified for the operation the patient is to take a free antiseptic rectal and vaginal douche with weak carbolized water.

The room chosen for the operation should face towards the sun and be warmed to about eighty degrees. The carpet and all unnecessary drapery is to be removed with a general wiping up of the dust with carbolized water. A table is to be placed end-wise at the best lighted window, with a quilt and sheet and small pillow on same; a low chair between the window and table, with two small stands on each side, is placed for the operator, while a stool at the opposite end and a small stand is necessary for the chloroformist.

The instruments required in this operation are few. We may name Sim's or Simon's speculum, double tooth tenaculum or volsella, a strong slightly curved scissors, a slim blade bistoury, half a dozen hæmostatic forceps, needle holder: half a dozen Emmet's cervical needles, straight and curved, counter pressure hook, two long dressing forceps, Reinster's irrigating curette, a uterine dilator, a few strands of silkworm gut,

two feet of heavy braided silk thread, a curved needle to match for introducing the guy ropes, an irrigating can and tube, a large rubber surgical pad, leg holder or Clover's lithotomy crutch, bichloride and iodoform gauze, constitutes the armamentarium.

The patient is placed on the table, lying on her back. The chloroformist with a little vaseline anoints her nose and chin. A cone made out of linen towel is used to administer the improved anæsthetic, preferably the P. A. C. E. mixture. As the patient succumbs to the lethal influence of the anæsthetic she is placed in the lithotomy position (some surgeons choose Sim's semi-prone lateral, the patient lying on her left side) and drawn down with the legs flexed on the abdomen by the two assistants, on the surgical pad to the edge of the table, for the sake of convenience and ease to the assistants, as well as to have their hands free to assist when required: the leg crutch is placed in position.

The external genital parts are thoroughly lathered and shaved, washed with carbolized water and iodoformed, and by this time the patient may be completely under the anæsthetic.

The instruments have been thoroughly boiled prior to hour for operation and immersed in a tray of aseptic wash. The introduction to the operation is by placing the speculum in the vagina, retracting downward on the perineum sufficiently to bring the cervix into view, and is intrusted to one of the assistants.

The cervix is now seized with the double-tooth tenaculum: a large curved needle, threaded with the strong silk cord and mounted in the needle holder, is introduced from above downward, in the center and through both the upper and lower lips: the blunt hook now catches the passing thread at the fissure and is drawn out, cut and tied to each respective end, making two separate guy ropes. The ropes are now used to pull down the uterus into plain view and to separate the two cervical lips. The irrigation can and tube having been previously filled with warm carbolized wash and hung on the wall, are attached to the irrigating curette. The guy ropes retracted and separated in the left hand, the uterine dilator is carried into the cervical canal, manipulated to the extent of allowing the free passage of the curette, which is now used with a moderate degree of pressure over all the interior walls of the uterus. The constant irrigation washes out and cleanses this organ: a small uterine sound is now dressed at the end with a strip of gauze, which is dampened with pure carbolic acid, and is inserted into the uterus and cauterizes the tissues which have been previously curetted. We have now come to the point of denuding the lacerated surfaces. The amount of tissue to be removed to place the cervix in its physiological condition has been noted. We separate and pull down the lips with the guy ropes. The long, curved-bladed scissors are made to engage the tissue, with one blade about one

line from the median line of the lower lip and up into the cervical canal as high as is deemed necessary to remove all the cicatricial tissue, while the other blade is in conjunction with the outer cervical tissue. The scissors make one sweep, completely and smoothly freshening its surface.

The other side is likewise treated, care being taken to leave a conical undenuded tract in the center lengthwise of the uterus to form the uterine canal from the external to internal os. What little hæmorrhage occurs on the lower cut surfaces can be easily controlled by compress or forceps, leaving a clean field to repeat the same operation on the upper lips. Extra precaution should now be taken to see that the scissors make a clean cut into the upper V-shaped angle, and in junction with the lower denuded surfaces, as here rests one main point in a successful operation. All the hardened or cicatricial tissue being removed from both flaps, we may proceed to close the two flaps.

The next step will be the introduction of the sutures: silver wire, cat-gut and silkworm gut sutures are the three kinds chosen by surgeons. Silkworm gut is the preference, from the fact that it can be made aseptic, introduced and tied easily, and is non-irritant to the tissues. It can be left *in situ* for any reasonable length of time, threaded with half a dozen short cervical needles and immersed into aseptic solution.

The guy ropes are now separated and intrusted in the hands of an assistant. The whole operating field

is irrigated with the aseptic solution, wiped dry, and dusted with iodoform.

The first suture should be placed high up to the limit and circumvent the V-shaped angle. This is the very important stitch and a hard one to procure. It is accomplished by having a needle on each end of a thread, with the needle holder and counter pressure hook: the needle is made to penetrate at the edge of the extreme upper angle of the cervical canal and directed out on the same level and two lines below the external edge of vaginal side of the cervix. The second needle on the same thread is made to enter and come out the same course on the adjoining flap. The opposite side and angle are now treated likewise, making one continuous deep suture. The other remaining sutures are placed about three lines apart, or just near enough to hold the denuded surfaces together without gaping intervals. These are inserted from the vaginal side or from without in, the needle to penetrate two lines from the vaginal edge and come out at the inner edge of the undenuded cervical canal, and made to enter the opposite side of the canal at the same point and pulled through at like point of the entering needle on upper flap. Each end of the thread should be six inches long from the cervix and protruding from the vagina. All surfaces should now be wiped dry and dusted with iodoform. A long, slim strip of iodoform gauze is inserted into the uterus and made to pack this cavity for aseptic

treatment, and drainage following the curetting.

We now begin to close the wound, the guy ropes are brought together, bringing the denuded surfaces into apposition; the first and deep suture is now tied with a surgical knot, just enough traction being given to secure the two raw surfaces together. Each suture in turn is treated in this like manner. The guy ropes are now removed, and the protruding ends of the sutures are gathered into one bunch on their respective sides and tied or held together with a split shot.

The surface of the cervix and vagina are well dusted with iodoform and dressed with long strips of iodoform gauze.

This completes the descriptive part of a bilateral or unilateral operation; but as there are many varieties of laceration, the surgeon is compelled to execute each one under its respective lesions as his experience has led him to choose: but the general procedure is about the same as I have set forth in this paper.

The patient is now placed in bed, which has been previously warmed with hot water bottles. She is allowed a little excelsior water or champagne to quiet the stomach and prevent vomiting, which generally follows an anæsthetic.

The patient should be placed on light, nutritious diet, and bowels kept open. The dry iodoform dressing is to be carefully removed every second or third day, and the parts dusted and treated with the gauze as in the first dressing.

The sutures can remain until the healing process is thoroughly completed, which may take from five to ten days. Their removal should be executed with a long, slim, pointed scissors, the speculum exposing the cervix. Slight traction is placed on each thread to locate its place and clipped at the united seam with the scissors.

The patient should remain in bed a few days longer with nourishing diet, that her health may be once more restored.—*Chicago Medical Times*, Dec., 1895.

SOCIETY PROCEEDINGS.

Transactions of the Detroit Gynæcological Society, Regular Meeting
Nov. 6, 1895.

The Vice President, Dr. Florence Anson, in the chair.

PATHOLOGICAL SPECIMEN.

Dr. A. W. Longyear presented a placenta taken from the broad ligation of an unmarried woman of 26, who gave absolutely no history of pregnancy. She evidently thought she had had a miscarriage several months ago, and said she menstruated regularly, and in fact, she menstruated once after she came to the hospital. The case had been seen by several physicians, and Dr. Gailey, who had charge of her a month in the hospital, noticed that the tumor, which could be felt on the right side and behind the uterus pressing it tightly against the pubes, increased in size. Dr. Longyear, who was asked to make a diagnosis and operate, was of the opinion that it was either a sarcoma or extra-uterine pregnancy. The abdomen was opened, and a smooth tumor was found in the right side of the pelvis, partly behind and apparently continuous with the uterus. The Fallopian tube could be traced from the right horn of the uterus along the upper surface of the tumor, which was entirely covered with peritoneum, and was immovable and about the size of a baseball. It was enucleated through an opening made with the finger in a thin part of the wall on its posterior side, and the cavity thoroughly mopped out with gauze, and about a pint of old dark

clots removed. The right ovary could not be found, and as the left was a cyst as big as a chicken's egg, it was taken out. The cavity was then thoroughly cleansed, a long drainage tube put in and the wound sewed up. Much vomiting and a very rapid pulse followed the operation, but she gradually improved and is now doing well. This is one of the kind of cases in which draining through the vagina is to be preferred; but in this particular case it was found necessary to drain through the abdomen.

BICYCLING FROM THE STANPOINT OF
THE GENERAL PRACTITIONER AND
GYNECOLOGIST, BY F. LYDSTON
NEWMAN, M. D.*Discussion.*

Dr. A. W. INXIE.—My views are entirely in accord with the reader of the paper on the hygienic measure which I consider bicycling to be. As applied to women and children, I think these views are generally entertained by medical men. The wholesome effect that the exercise, indulged in with proper restrictions, must have on the well-being of women goes without saying, and I can see nothing deleterious in it to women who can indulge in any other kind of exercise. To relieve the constipation of those of sedentary habits and to correct the pelvic congestions from which so many woman suffer, it seems

to me nothing better can be found. It is a boon to the shop girl who has little or no pleasure, and suffers from the long confinement in impure air. I think we should be very guarded in giving advice to beginners, especially warning them against the evils of overdoing.

Dr. J. A. CARSTENS. — I quite agree with Dr. Newman in all his points except one. I doubt if it removes pelvic adhesions. The great trouble is that so many women overdo it; they should begin very slowly riding a mile or two a day for the first week, and gradually increasing the distance, taking at least three months to reach ten miles a day. Too long distances at first is bad for both heart and muscles.

Dr. CHARLES DOUGLAS. — I feel very much interested in the paper, and I think it is one of the most appropriate subjects that could be brought up. As applied to the female it interests physicians most. I can heartily agree with the treating of the subject and the conclusions at which the writer has arrived. I have been in the habit of prescribing bicycling for young ladies in certain difficulties. I recall one patient of seventeen or eighteen who came and went under medical treatment for months, sometimes better, sometimes worse, with more or less constipation and dysmenorrhœa, very hysterical and timid. I recommended her to get a bicycle. She did, and bade good-bye to the physician. That is only one case in many such to which my mind reverts. I remember another young lady who was continually coming to my office suffering from neurasthesia, hysteria and timidity. I insisted on bicycling, and though the parents were nervous and fearful, I finally prevailed, and she is doing very well indeed. My own children

have been using it since wheels were first introduced, and certainly the question of who should and who should not use the bicycle is one which is constantly being asked the physician.

Dr. HARRIET GERRY. — I wish to congratulate the doctor on his paper. The subject is one in which lately I have been particularly interested. I was glad to hear the comparison of the bicycle and the sewing machine taken up, the position of the body and the out-door air make all the difference in the world. Another point is the question as to whether women suffering from chronic pelvic troubles should ride or not. This question was brought to my mind five years ago by one or two patients of mine who wished to ride. My consent was given hesitatingly, but so much good followed the cautious trials I recommended that the exercise was continued. About a week ago I saw a patient of mine, who asked my advice a year ago, and as she had an enlarged ovary and chronic retroversion and was obliged to wear a pessary, I had given it as my opinion that the conditions were unfavorable. When I last saw her she said she had never been better in her life; she had been riding all summer and the pessary had caused no irritation. From observation of a good many friends and acquaintances who are not patients, I am led to believe that it is not advisable to ride violently near the monthly period, as it seems to bring on the menses before the time, and this might ultimately produce some trouble. For the same reason it might be recommended in delayed menstruation.

Dr. H. W. LONGYEAR. — In discussing a paper it is generally necessary to find something to criticize, but in this case I find myself handi-

capped, as the writer voices my own sentiments. The subject has attracted my attention a great deal during the past few years, as the question of riding is asked me very often. I think the points laid down by the reader of the paper are perfectly correct, and I can endorse them fully. There is nothing that does the average woman so much good as the exercise they can get on a wheel, for women will not usually take out-door exercise in sufficient quantity to get any benefit in other ways. I have so many patients who have been benefited that it has surprised me. One, who is going through the menopause, whose uterus I have curetted twice, and who has not been able to walk over three or four blocks at a time owing to the pelvic congestion, and who was becoming quite fleshy and miserable, has taken to the wheel and can ride five or six miles a day. Her flesh is firmer, skin a better color and she is enjoying life. I have had cases of dysmenorrhœa that have been much benefited and are now out of my care, on account of the wheel. I think that the caution that Dr. Gerry has just given us with regard to riding immediately before the periods is excellent. With regard to the action on the heart (that comes now under the head of general medicine) there is no question that violent and long continued exercise in any way will tend to produce trouble, and this is no exception. I think the fact that a

woman with pelvic trouble, who cannot walk far, can ride a wheel with benefit, is due to the fact that she is not supporting her body on the lower extremities, but is going through the motion of walking, and having her blood oxygenized without that added fatigue. I tell my patients, whom I allow to learn to ride, that the *riding* will not hurt them, but that the greatest care must be exercised in *learning*, and that in doing so they must take plenty of time, be sure not to overdo until the muscles have become accustomed to the unusual exercise, and have an assistant to prevent accidents until a safe degree of confidence and skill has been attained.

D. F. L. NEWMAN.—I have to thank the Society for so heartily endorsing my paper, especially as I came prepared for adverse criticism, for I believe the remark quoted in my paper that "Three years hence women will have sorrow in their hearts because of the bicycle" emanated from a member of this Society. I was glad to hear Dr. Gerry's statement in regard to the pessary, as that is a question that has often come up in my mind, as has also the question of riding immediately before the periods, although I know women who ride all through that time without apparent harm. One of the most valuable pieces of advice a physician can give is that of Dr. Longyear's in regard to learning to ride slowly.

REVIEW OF GYNÆCOLOGY.

ON THE RESULTS OF REMOVAL OF THE OVARIES FOR MYOMA.

Hermes (*Arch. f. Gynäkologie*, vol. 48, part i., 1894) gives the after-results of this operation, based on the observation of 68 cases at Halle: of these, 30 (group A) were done by Fehling, and 38 (group B) by Kaltenbach.

The views of leading German gynaecologists as to the place and value of operation are first given. *Martin* objects to it on the grounds, firstly, that in a number of cases hæmorrhage continues; secondly, that myomata often begin to grow more rapidly after the physiological menopause.

Winckel in 1890 modified his former unfavorable opinion of the operation, but remarked that it remained a mutilation, and was to be resorted to only in exceptional cases.

Olshausen also in 1890 entertained an increasingly favorable opinion of it, as he considered that it might be relied on to stop hæmorrhage and reduce the size of the tumor. He thought it especially suitable for interstitial fibroids of medium size.

Hofmeier (1892) gives the operation a place; he considers it contra-indicated in very large tumors, especially if fibrocystic; in fibroids affecting the cervix, and extending into the pelvic connective tissue; and in subserous fibroids. It is indicated in medium sized interstitial and submucous growths when hæmorrhage is the prominent symptom. When pressure symptoms are most marked, he prefers myomotomy.

Fritsch (1894) and *Pozzi* (1892) hold much the same views.

Leopold recommends removal of the appendages with small tumors up to the size of a child's head, as long as the patient can stand laparotomy and the ovaries are accessible; otherwise he prefers vaginal extirpation, leaving the ovaries behind. With larger tumors he resorts to myomotomy.

Fehling (1893) performs the removal of ovaries in (1) all rapidly growing tumors which have not yet reached the navel; (2) in growing tumors occurring in young women of twenty to thirty; (3) in interstitial fibroids, broad-based subserous or submucous fibroids; (4) in intra-ligamentous tumors.

Wiedow (1889) gives the operation a wide scope, reserving myomotomy for (1) cystic fibroids; (2) pedunculated subserous or submucous growths; (3) very large tumors.

Hermes then gives particulars of the after-history of all the cases in group A and of 25 in group B. The remaining 13 in group B were in Kaltenbach's private practice, and no data were available except the mortality.

The age of the patients was:—

	20-20.	30-40.	40-50.
Group A	1	15	14
Group B	—	7	18
	1	22	32

Civil state.—Eighteen patients were single, thirty-seven were married.

Mortality.—In group A three

cases died: in group B (38 cases) one died. In all, of 68 cases, 4 died, giving a mortality of 5.8 per cent. The statistics of other operators are given, viz:

	Cases.	Deaths.	Percentage.
Wiedow . . .	66	5	7.6
Leopold . . .	35	4	11.0
Hofmeier . . .	40	2	5.0
Hofmeier . . .	15	2	13.3
Olshausen . . .	13	4	31.0
Olshausen . . .	42	4	9.5
Freund	23	2	8.7
Total . . .	244	23	9.4

Adding to these Fehling's and Kaltenbach's results, the total is 312 cases, 27 deaths=8.9. The cause of death in 61.5 per cent. was septic peritonitis; showing clearly how much the mortality is capable of reduction.

Results. Hermes considers two factors only: arrest of hæmorrhage and shrinking of the tumor. Particulars of hæmorrhage are given in 51 of Hermes' collected cases: menopause was established in 40=78.4 per cent. Irregular hæmorrhage continued in 9 cases: regular in 2.

In the hands of other operators the menopause was attained in the following proportion of cases:—Wiedow, 97 per cent.; Glaevecke, 88 per cent.; Olshausen, 82 per cent.; Hofmeier, 92 per cent.; Leopold, 96 per cent.

The condition of the tumor after operation was noted in 48 cases, namely:—shrinking in 45 cases=94 per cent.; no alteration in 1 case=2 per cent.; increase in 2 cases=4 per cent.

Other observers found diminution in size as follows:—Wiedow in 97 per cent.; Glaevecke in 90 per cent.; Leopold in "nearly all cases."

In several cases, both among those collected by Hermes and in those of

other operators, some further operation was required, such as enucleation of a submucous fibroid, *per vaginam*.

There were several instances recorded in which part of an ovary was left behind, and was discovered when the abdomen was opened later for further operation. To secure good results it is necessary that cases should be selected: Hermes agrees with Wiedow's enumeration of conditions which contra-indicate operation. Moreover, if, when the abdomen is opened, it is found that it will not be possible to completely remove both ovaries, it is better to close the wound again without attempting any removal, or to adopt some other operation. Hermes refers to the objection which some have raised to the operation, on the ground that it is a "mutilation," and a principle opposed to conservative surgery, to remove healthy ovaries. In the majority of cases the objection is invalid, because the ovaries and tubes are unhealthy.

Wehmer, Kaltenbach's assistant, found that "the ovaries, in the case of large myomata, almost always show pathological alterations, from simple hypertrophy to small-cyst formations; while the tubes were in a large number of cases either occluded by secretions or dilated into hydrosalpingitic sacs." *Extermann* found the ovaries degenerated in 9 cases out of 10 examined. *Bulius* and *Popow* found corresponding results.

In the 55 cases which Hermes records, the condition of the appendages was noted in 34: as follows:—

	Cases.
Ovaries unaltered	2
Ovaries hypertrophied	2
Ovarian cysts	4
Fibrosarcoma of ovary	1
Pyosalpinx	1
Hæmatosalpinx	2
Small-cystic degeneration	19

That is, pathological conditions were found in 93 per cent.

Hermes leaves unconsidered one of the most important points, viz.: the proportion of cases in which other symptoms than hæmorrhage were relieved: nor does he in his summary make any reference to the mental condition of the patients, or their ability to resume their work. These points are incidentally mentioned in some of the notes of the cases.

He concludes his paper with several recommendations as to operative procedure. He advises that the stumps be cauterised, to lessen the risk of adhesion to the intestines. Trendelenburg's position is recommended as giving much greater facility for the for the operation. When there has been any soiling of the peritoneum with blood or secretions he advises flushing of the abdomen with warm normal saline solution.

Ergot, he says, gives very good results, in the cases where hæmorrhage persists in the first year after operation.

PHLEGMASIA ALBA DOLENS COMPLICATING LAPAROTOMY. By J. M. BALDY, M. D.

This peculiar condition has been noticed quite frequently during the past year in my surgical practice, and although at no time has it proven dangerous, still it has invariably delayed the convalescence and has shown itself to be an extremely painful and annoying affection. Owing probably to the patient's disappointment at having a "set-back," a considerable amount of depression accompanies the trouble. One peculiar feature noticeable in this connection is the fact that in all my surgical experience but one or two similar cases can be recalled, while within

the past year and a half probably as many as ten or a dozen instances have been noted.

The cause of the affection has remained a complete mystery in spite of the fact that all the cases have been studied most carefully with the object of ascertaining the origin if possible and of putting a stop to it. It will therefore only be possible to record the facts of the cases in hopes that some other may have been more fortunate in his investigations, as I am convinced, from the frequency with which the condition has occurred in my hands, that other surgeons must have had similar experiences.

In puerperal phlegmasia it has been said that "it occurs for the most part in the second or third week after delivery: is limited to the lower extremity and chiefly to one side, exhibiting to the touch a feeling of numerous irregular prominences under the skin. It is hot, white and unyielding, and is accompanied sooner or later with febrile excitement. After a few days the heat and hardness and sensibility diminish and the limb remains œdematous for a longer or shorter period." This description is a fairly true one of the cases referred to as occurring after laparotomy. The attack begins, as a rule, about or toward the end of the third week after the operation, at a time when the patient is in apparent perfect health and about to leave her bed. The first symptom is the appearance of pain in the hip followed quickly by swelling of the part. The swelling and pain spread downward rapidly until within twenty-four hours the whole leg is involved. The swelling is excessive, and the tissues are hard to the touch with no evidence of œdema. In a few days the part becomes less hard and the pain is correspondingly relieved. At

no time has any distinct line of redness been observed to follow the veins, although the tenderness is apt to be more noticeable at these points on pressure. The condition never has been accompanied by any septic evidence whatever. In no case has there been even a stitch-hole abscess. All the patients have had an easy and uneventful convalescence up to the period when the attack began. In none of them that can be remembered has the disease for which the operation was performed been a septic one. On the contrary, a remarkably large proportion of the cases have followed hysterectomy for fibroid tumors. The exceptions have not been more than two or three. That the complication is not alone peculiar to hysterectomy—and by this supravaginal hysterectomy alone is meant (not a single case having followed vaginal hysterectomy)—is born out by the fact that it occurs in one case of unilateral ovariectomy and in one of hysterorrhaphy and perineorrhaphy. One leg alone is affected. In this connection it is worthy of note that in one patient from whom the *right* Fallopian tube and ovary had been removed the *left* leg was the one which became crippled.

The condition lasts from two to three or even four weeks before the last trace of it has disappeared. It almost invariably confines the patient to bed for two weeks at least. The swelling and pain leave gradually and about simultaneously. The application of the hand to the affected part conveys the sensation of considerable heat, although after the first day or two the thermometer in the mouth shows no particular rise in temperature. In several instances within the first twenty-four hours the temperature has been found as high as 101° but has fallen to the neighbor-

hood of 99° within the next day. On the other hand, some cases have shown no rise from the first. The pulse remains correspondingly good, seldom exceeding eighty or eighty-five beats to the minute. The condition of mental depression has already been noted, but it has appeared to me that this has arisen more in consequence of the anxiety to return home, and the attendant disappointment, than from the disease.

The only treatment which has been adopted has been the application of lead water and laudanum to the whole limb, for the sake of easing the local distress, and keeping of the patient quiet in the recumbent position. All the cases have run much the same course and have required about the same length of time until they became well.

The complication has proved so interesting to me and withal so unusual, until recently, that it seemed eminently proper to bring it prominently before the profession in hopes that some feasible explanation might be found for it. That the cause is not a septic one is to me perfectly evident, and unless it can be attributed to a thrombosis (non-septic), or possibly to an embolus, I am unable to account for it. The thrombus theory would seem to be more feasible than that of embolus, as in all the cases the trouble begins in the hip and extends downward, and distinctly does not begin in the foot and extend upward. It were not hard to imagine a thrombosis giving rise to such a condition in a case where a hysterectomy had been performed and the uterine arteries were ligated: but why and how it should occur in the case of a hysterorrhaphy is more of a mystery. And, again, why it should always be unilateral and for the most

part confined to the left leg requires further elucidation.—*New York Journal of Gynecology and Obstetrics.*

REMARKS ON ECTOPIC GESTATION.

By FRANCIS FOESTER, M. D.

The subject of ectopic gestation is of intrinsic interest to the general practitioner as well as to the gynæcologist; it renders to both the opportunity to show diagnostic ability, and enables the surgeon to demonstrate his good judgment and operative skill sometimes under the most embarrassing circumstances. Undoubtedly during the last few years general practitioners have made considerable progress in the recognition of the characteristic symptoms, admitting thus of an early surgical interference. This advance in the diagnostic faculty has to be valued so much higher, as we know that there is no sharply defined line of symptoms which can be laid down as pathognomonic of this disorder. On the contrary, this knowledge can only be attained by an attentive study of the literature on the subject, by comparing a series of cases, abstracting therefrom the most striking features.

It has become the general opinion that the life of the patient rests mainly in the hands of the family physician, inasmuch as on his early recognition of the prevailing symptoms depends in a great measure the ultimate result of the operation. As a further progress we have to note that for some time past the expectant plan of treatment has been given up almost altogether. The injection of strychnia, of ergot into the foetal sac have become historical; the morphia injections are practised by a few of their earlier advocates. To-day we hear only occasionally of a case where electricity has been resorted to as an agent to destroy the life of the fœtus; the immediate

as well as the remote danger connected with these measures have become fully appreciated by the profession.

We shall not go wrong in stating that among progressive practitioners the conviction prevails that the only way to do full justice to our patients in cases of ectopic gestation is in advising and carrying out of an early operation.

Experience has shown that even cases which are apparently beyond all hope, where the excessive intraperitoneal hæmorrhage has been exhaustive, are by no means so hopeless that an operative interference could not bring about a favorable issue. Proportionately to the increasing interest in the subject, we find the medical literature overburdened with the reports of cases. An ailment formerly considered of rare occurrence has become so common that every practitioner meets with such cases, every gynæcologist has been called upon to operate more or less frequently. But the zeal of reporting these has been carried too far in a good many instances. It has become a general idea that all collections of blood found in the tube, or between the folds of the broad ligament, or even in the free abdominal cavity, must be looked upon as the result of an extra-uterine gestation. While this is true in a good many instances, there are conditions where such a statement does not hold good.

I could enumerate from my own experience a number of cases where I found as the source of hæmorrhage pathological conditions in the ovary, hamatomata, which were fully sufficient to account for the hamatomato salpinx in the closely adherent tube, an hæmatocœle in the abdominal cavity, or an hæmatoma in the folds of the broad ligament. Besides, cases are on record in which sarcoma of the tube-walls caused considerable hæmorrhage. We cannot, therefore, declare

ourselves satisfied with an off-hand assertion of ectopic gestation in these cases : for accurate diagnosis we have to resort to microscopical examination of the contents of the wall of the tube, or the débris otherwise found in the abdominal cavity. The presence of chorionic villi or of decidual structure must be established in the first line, provided that we are unable to find the fœtus.

Four years ago I reported five cases of ectopic gestation which came under my observation in private practice in the comparatively short period of about two years. In narrating these cases I ventilated the views current at the time, giving my own opinion and adding suggestions which came to me scrutinizing these cases. Since that time I had the opportunity of operating in a fair number of cases. I will not fall back on these, but will base my remarks on five cases which occurred to me during my last service at the German Hospital, and two cases which I observed at the German Dispensary.

These last two cases I consider as specially valuable and I will, therefore, without giving the history in full speak on the pertinent points of interest.

The first patient came to me with the usual history. Menstruation, which was formerly regular, had been delayed several days and was very scanty in amount. She had suffered from colicky pains in the left ovarian region for several days : the pain diminished in severity gradually. On examination I found close to the uterus a mass which extended downward and backward into Douglas's pouch, the surface somewhat uneven, the consistency doughy, on pressure moderately sensitive. There was a slight chocolate-colored flow from the vagina. As this patient had been under treatment before and nothing in the shape of a tu-

mor was detected in the left parametrium, and as the breasts secreted colostrum, I only could look upon the case as one of ectopic gestation, probably tubal abortion. I did not consider this an instance of rupture of the tube, as the hæmorrhage had either apparently come to a stop, or was progressing so slowly as to allow the effused blood to coagulate around the thrown-out-products of gestation in Douglas's pouch. In tubal rupture we rarely hear of such a cessation occurring : smaller or larger arteries are spurting from the torn surfaces and do not come to rest until a large amount of blood has escaped into the abdominal cavity, the blood-pressure then being considerably diminished.

In tubal abortion the ovum escapes through the abdominal end of the tube, and a slow venous bleeding from the secundines in the tube is the result. Since the patient was not willing to submit to an operation, and this was not imperative, and the state of health being besides a fair one, I decided to wait for further developments, recommending rest in bed. The patient has reported weekly, the tumor has decreased in size, so that to-day only a small irregular nodular mass can be felt in Douglas's pouch.

The lesson to be learned from this case is apparently to follow the expectant plan whenever we find that the patient is not in imminent danger. Yet I would consider such a conclusion fallacious.

Although the stage of acute anæmia has been safely passed at the time, it can happen that a renewed hæmorrhage may set in, putting the life of the patient in immediate jeopardy. The products of gestation, thrown from the tube into the abdominal cavity, are liable to implant themselves in the most undesirable localities.

An illustration of such an occurrence I will give in the course of this paper.

The foetal development after rupture of the sac or after abortion from the tube may proceed, exposing the patient to the dangers of an extensive operation later on, or it may come to cessation, forming in the woman's abdomen an inert mass, the destiny of which is uncertain. Under most favorable circumstances the peritoneum will absorb the effused blood and even the ovum, the latter especially, when advance in development, often being converted into a lithopædion. This process is naturally a slow one. The patient meanwhile, being continuously under the apprehension of an unfavorable issue, suffers both mentally and physically. But granted that absorption did take place, we still have the residue of the sac in form of a hard cicatricial mass left *in situ*. We still have to deal with the deceased tube, originally the starting-point of trouble. Such a tube we cannot expect to return to the normal state: on the contrary, it will constitute a permanent menace to the welfare of our patient: the slightest provocation will suffice to cause it to become once more the centre of irritation.

The safety of a woman is not assured as long as this degenerated organ remains in her body.

The expectant plan, therefore, cannot be considered seriously any longer. The treatment of ectopic gestation under all circumstances consists in operative interference, *i. e.*, ablation of the hopeless diseased parts and removal of the products of gestation from the abdominal cavity. When the anamnesis and the physical examination point to the probability of ectopic gestation, I claim the operation should be performed even to the risk of being based on an erroneous diagnosis. The deceased state of the tube and likely the ovary always found in these cases warrants the laparotomy.

As to the mortality, the surgical cases compare most favorably with those

treated in an expectant way: the earlier the operation is performed the less dangerous it is: it ought to be almost absolutely safe in the hands of experts. Even in neglected cases, where septic symptoms are developing, we should not desist in our efforts: we may gain by our bold interference what would otherwise be absolutely lost, namely, the life of the patient.

The second case, a woman aged twenty-four, has gone through several early abortions: no children.

She noticed that the last menstruation was rather scanty and somewhat delayed. For two weeks she complained of constant pain in the left ovarian region. On examination I found close to the somewhat enlarged uterus a mass of the size of a walnut, apparently in the first third of the Fallopian tube. The breasts upon pressure secreted colostrum. She was under observation a full month: has been demonstrated repeatedly in my clinics as a case of ectopic gestation. Seven weeks after the last menstruation she noticed a slight bloody, watery discharge from the vagina, considerable pelvic pain, followed by a profuse hemorrhage, which kept her in bed for several days.

When presenting herself she was still flowing. On examination I found that the enlargement, which had grown to the size of a crab-apple, had disappeared, the cervical canal was patulous, indicating that the woman had recently aborted. Undoubtedly this was a case of tubal gestation in the segment nearest to the horn of the uterus. Nature, assisted probably by the repeated examinations, has taken care of the case.

If an electro-therapist would have obtained control of this case, he surely could have claimed the favorable outcome as a result of his efforts. I believe galvanism can assist nature most effectively in such early cases of tubal

gestation, where the products are located in the uterine portion of the tube, or the portion next to the uterine portion of the tube, or the portion next to the uterus, as long as the distention of the tube has not gone so far as to force apart or to completely destroy the muscle-fibres and deprive them of their power of contraction. In the first few weeks we notice even a thickening of the muscular coat, analogous to the increase of muscular element of the uterus. Galvanism then can be used with a certain degree of safety: massage may likewise be beneficial: but the moment the distention becomes excessive, galvanism as well as massage become risky procedures. This case took a most favorable termination, it is the first one in my experience where I was enabled to watch nature's efforts to my full satisfaction. Many cases are reported of similar character, and although we must consider such an outcome feasible, I was sceptical about it, looking upon the diagnosis of such cases as an erroneous one; they may have been pregnancies, I thought, in the horn of the uterus or in the interstitial portion of the tube.

The five patients I operated upon in the hospital were, with the exception of one, the routine cases. I will not tire you with their histories, but will simply state that four were cases of tubal abortion and one of ruptured gestation. All of them recovered. Where the fetus was not found the microscopical examination of the tube cleared all doubt as to the nature of the morbid condition. It is only within the last few years that tubal abortion is recognized to be by far the most frequent outcome of tubal gestation. I regard it of so frequent an occurrence that many cases may escape observation.

In conclusion I would like to give the history and account of the operation in a case of tubal abortion that,

owing to its complications, I deem of special interest.

S. G—, aged thirty-eight, married fourteen years, two children, youngest aged four: no abortions. Menses regular up to four months ago, when she passed eight days over her usual time. The bloody, watery flow was accompanied by intense pain in the right side of the abdomen, so that she had to stay in bed ten weeks. The pain did not diminish in severity for four weeks. She had a short period of rest followed by a profuse metrorrhagia, which reduced considerably the otherwise robust woman. The pain in the right side gradually became lessened, but her exhausted condition and the continuous flow forced the patient to enter the hospital.

The examination per vaginam revealed two distinct masses—the one of the size of two fists at the right side of the uterus, very sensitive on pressure, of irregular outlines and doughy consistency: a second, semifluctuating tumor at the left side of the uterus and closely adherent to it, filling Douglas's pouch. The uterus pushed to the right side measured four inches. Temperature 102.2° F.: pulse 110, of bad quality: constipation. My diagnosis was: extra-uterine pregnancy complicated by cystomyoma uteri.

On opening the abdomen I found a considerable quantity of old coagulated blood on the omentum and between the loops of intestines. At the right side of the uterus I found a large, greenish tumor, imbedded between the intestines, bordered above by the transverse colon, to the right by the cæcum.

The vermiform appendix entered this mass at the extreme right. An effort to free the same from its adhesions resulted in a tearing of the appendix both from the cæcum and the mass itself. An opening of the sac was thus caused large enough to allow a quantity of the semifluid contents to

escape into the abdominal cavity. The brownish-green fluid was extremely offensive, consisting of blood decomposed by the admixture of faecal matter. The general abdominal cavity was fairly well guarded by gauze pads, but not sufficiently to keep this unexpected flow of fetid material within bounds. Some of the liquid escaped upward, soiling the intestines and anterior surface of the liver.

Under the circumstances I could do nothing better than to free the rotten mass as quickly as possible from its adhesions with the intestine. The sac contained besides the fluid a decomposed foetus and placenta of the third month. The remaining stump of the appendix was ligated closely to the cecum. The considerably hypertrophied tube showed no rupture, the abdominal end being patulous. The odor from this foul liquid was so intense that we were compelled to bathe our hands in a strong solution of hypermanganate of potassium, using the same solution on pads, to wipe out the abdominal cavity. I applied a temporary tampon to stop the extensive bleeding from the denuded peritoneal surfaces. I proceeded then to remove the tumor on the left side. After considerable difficulty I was able to enucleate unruptured a large pyosalpinx containing 4 to 5 ounces of pus. I inserted gauze drains in different directions and closed the abdomen in the usual fashion. The result was a most satisfactory one.

Highest temperature after operation 101.4° F.; the pulse was frequent and of poor quality for a few days, but improved under stimulation. The patient left hospital in the usual time. I am not amiss in considering this case of interest enough to devote a few minutes to a closer analysis. I would first point to the difficulty in the diagnosis. From the statement of the patient and the prevailing symp-

toms, it was comparatively easy to diagnose an ectopic gestation. There was no point, however, in the history which would be explanatory of the presence of the huge pyosalpinx. This accumulation of pus could not have been of recent date, the adhesions binding the salpinx down closely to the side of the uterus were quite firm, so that I may state that the patient has carried this pus-bag for years without being materially influenced by it. I would next call your attention to the peculiar part the vermiform appendix played in this case. It is the common experience of every gynæcologist to find in tubo-ovarian disease the appendix frequently bound down by pseudo-membrane in close proximity to the diseased parts. Often is the appendix itself so much pathologically changed that we are unable to say whether the ovarian disease was primary or whether secondary to the appendicitis. Although I have seen cases where the ovarian disease only could be caused by the well-marked pathological condition of the appendix, where in a cystic ovary only one cyst, being closest to the appendix, contained pus, nevertheless I would say that generally the opposite holds good, namely, the appendix is secondarily involved. In woman a peritoneal fold unites the appendix to the ligament of the ovary, which explains the easy transmission of inflammation from one organ to the other.

In this case the pregnant right tube aborted its contents into the abdominal cavity unluckily in such a way that the appendix became involved near the placental site. The consequence was a gradual erosion of its coats and an ultimate rupture, allowing the faecal contents of the intestines a free communication with the sac, resulting in speedy death of the foetus and decomposition of the contents of the sac.

It is further interesting to note how

kindly the peritoneum took all the insults offered during the operation. We frequently see that in operations for pyosalpinx or ovarian abscess the diseased portion cannot be removed without rupture of the abscess and the escape of more or less pus into the abdominal cavity; rarely we do see ill effects follow; the peritoneum seems to have acquired a certain tolerance for this infectious material from having been for sometime in close contact with it. In this case we may assume that immunization has taken place to a certain extent, or else it would be difficult to explain that such material as faecal matter and decomposed blood should have been borne by the peritoneum without producing the slightest reaction.—*Medical Record*, March 30, 1895.

ANTIPIRYN-SALOL IN THE TREATMENT OF UTERINE HÆMORRHAGE.

Prof. Labadie-Lagrave had used antipyrin successfully in the treatment of certain uterine hæmorrhages. It is difficult to introduce the powdered antipyrin into the uterine cavity, so it occurred to him to use antipyrin liquefied with salol, thus producing a medicament at once hæmostatic and antiseptic. The following is the mode of procedure: Equal parts of antipyrin and salol are placed in a test-tube so as to occupy about one-third the space; they are then heated over an alcohol lamp, when the mixture is soon transformed into a clear liquid with a slightly brownish tinge. This is not the time to use the solution, for it will solidify too rapidly. The heating is continued until a well-defined brown color is noticed, when there is no danger of its rapid solidification. The liquid is introduced by means of cotton soaked in it and rolled on a wooden applicator; after seeing that the liquid is not too hot, the application is

made through the speculum. If the hæmorrhage is excessive, two applications are made at the same sitting, after which a tampon soaked in glycerated creosote is placed in the vagina and the patient sent to bed. The applications are free from danger and occasion no pain. Their hæmostatic action is rapid, sure, and complete; the hæmorrhage is quickly stopped and by the second day there is no trace of hæmorrhage; it is rare that the application needs to be repeated. The method is efficacious against hæmorrhages due to fungus metritis, to misplacements, fibromyomata, and also to malignant tumors in the beginning, when the hæmorrhage is due more to congestion than to ulceration.—*Chicago Medical Reporter*.

EXTRA-UTERINE PREGNANCY: FOUR RECENT CASES. BY DAVID BARROW, M. D.

CASE I.—Mrs. W., aged thirty-four; married twelve years. Two children, one twelve and the other nine years old. Has not been pregnant since birth of last child. During the past two years has been treated for some pelvic trouble, but the symptoms were never severe. Menstruation always regular, but scanty. From December 4th to 7th had a normal period. January 1st there was a slight bloody discharge, lasting only a few hours and attended by pain. From the 1st to the 9th there was occasionally a discharge of blood, with rather severe paroxysmal pain. From the 10th to 20th the flow was free, but at no time could decidua be detected. The pains were very intense in the region of the right tube; would come usually at night and last an hour or two. None of the usual symptoms of pregnancy existed. Extra-uterine pregnancy was suspected, and I asked to have Dr. Kimniard see the patient with

me. On the 21st chloroform was administered and a careful examination made. To the right of the uterus and high up, could be felt a round mass about the size of a walnut: the uterus was apparently not enlarged. Dr. Kimmiard agreed with me in the diagnosis, and that evening she was taken to the Protestant Infirmary. Her condition was good, and there was no evidence of rupture. She was well purged on the 22d. From the 21st to the 23d the pulse increased in frequency and was much weaker, but there was no positive evidence of hæmorrhage. On the 23d the abdomen was opened. Present: Drs. Kimmiard, Patterson, Witherspoon and Todd. There was about a pint of fluid blood in the cavity. The ovum was in the outer third of the right tube, and the hæmorrhage was continuing from a small rupture. Right tube and ovary were removed: large irrigation and glass drainage. Pulse remained rapid and feeble for nearly a week, but otherwise convalescence was smooth and uneventful. She returned to her home in about a month. I believe the rupture occurred at the examination on the 21st.

CASE II.—Mrs. C., aged about twenty-eight: married thirteen years. One child, seven years old, and one miscarriage five years ago. No pregnancy since. Menstruation was always regular, but during the periods there was always some pain and great nervousness. Occasionally during the past few years the patient has suffered severe abdominal pain, probably attacks of appendicitis, and ever since the birth of her child there have been symptoms indicative of pelvic disease. In December she passed her period ten days, followed by irregular bleeding for three weeks, with severe paroxysmal pain. At 2 A. M., January 31st, she was awakened by in-

tense pain in the lower part of the abdomen. In a little while there was great weakness, and she fainted. She was soon revived by the use of stimulants and by a hypodermic of morphine.

From the 31st of January to the 4th of February she suffered a great deal, was greatly prostrated and in a critical condition. That day she grew rapidly worse, and at 4 P. M. I saw her for the first time. Her condition was extreme, and death seemed imminent. The skin was cold and clammy, the temperature subnormal, the thirst great, the abdomen distended and painful, restless, and the pulse almost imperceptible. It was evident that she was bleeding to death.

Ruptured tubal pregnancy was diagnosed and operation advised. At 10 P. M., the operation was done. Present: Drs. Kimmiard, Patterson, Witherspoon and Bullock. Ether was given, but on account of her extreme condition anæsthesia could be only partially maintained, and at no time was she wholly insensible to pain. On opening the abdomen blood gushed out in great quantity. The left tube had ruptured and was bleeding: it and the ovary were removed. The right seemed healthy. Several gallons of water were used in the irrigation and a glass tube inserted. She was put to bed in a better condition than expected, and no worse for the operation. She reacted slowly and did well for ten days. At that time she complained of excruciating pain in and above the right iliac fossa: the temperature went to 102°, and the pulse to 120. Soon induration appeared and extended gradually to the median line. The fever and pain continued, and on the twentieth day after the operation an abscess discharged through the bowel at least a pint of bloody pus.

This continued for about a week. She improved slowly, but at this time is getting about and seems well. The abscess should have been evacuated by operation and the chance of favorable rupture not taken.

CASE III.—Mrs. P., aged thirty years; married eleven years. She has two living children and one dead. They were born nine, seven, and four years ago; she has had no miscarriage. Menstruation has always been regular and almost painless. For two years has had a few symptoms referable to the pelvic organs. At last regular period, February 15th to 18th, suffered a great deal of pain. No menstruation in March, but on the 25th there commenced a bloody discharge, at times profuse, which continued until the operation was done. The pain was intense, lasting for two or three hours, and recurring every day or two. I first saw the patient on April 10th, with Dr. Skillman. To the right of and behind the uterus was a mass filling a large part of the pelvic cavity, being tense and fluctuating; the uterus was but little if at all enlarged; was fixed and pushed forward. A diagnosis of extra-uterine pregnancy was made. The patient went to the Protestant Infirmary on the 12th, and on the 13th the operation was done. Present: Drs. Skillman, Patterson, Witherspoon, Todd and Coleman. Adhesions had confined the blood to the pelvis. The ovum was in the outer portion of the right tube, and leakage had taken place through the fimbriated extremity. The right tube and ovary were removed; the left, being diseased and adherent, were also removed. Irrigation and drainage. The patient reacted quickly and recovered rapidly. She returned home three weeks after the operation, well.

CASE IV.—Mrs. M., aged twenty-

eight; married nearly five years. No children, but had a miscarriage nearly five years after marriage, and one since; she thinks she aborted at the second month. Ever since the miscarriage has had some pelvic trouble, and was treated by Dr. Poyntz, of Richmond, for several months. Menstruation painful and slightly irregular. From February 1st to 3d, inclusive, she menstruated, in every respect naturally. Soon after she complained of slight pelvic pain and irritability of the bladder, and of some nausea and vomiting. She supposed that she was pregnant, and continued to attend to her household duties. Until April last she did fairly well, although suffering most of the time. From April 1st to 17th she was in bed a great deal, and at times suffered severe paroxysmal pains. On the 17th I saw her for the first time. She was then complaining of intense pelvic pain, had a weak and rapid pulse, was sweating profusely, and quite nervous. The mammae were enlarged and contained "milk." An examination *per vaginam* revealed nothing positive, but was very unsatisfactory on account of the surroundings and resistance to manipulation on the patient's part. She lived in the country, and I did not see her again for ten days, but the husband reported her better. On the 27th he came for me, stating that his wife was much worse, and suffering as she had when I first saw her. I insisted that she be brought to the Protestant Infirmary, as it would be necessary to give an anæsthetic for diagnosis, and it was impossible for me to attend her at home. Told him that I suspected extra-uterine pregnancy. On the 30th she was taken to the infirmary, and on May 1st, under chloroform, I made a careful examination. The uterus was enlarged, and to the left and behind was a mass as large

as an orange. At every visit there had been some elevation of temperature, ranging from 99° to 101° , and at no time had there been bleeding from the vagina. The trouble was either pelvic abscess or tubal pregnancy, and I was rather inclined to the former opinion. Operation was done on the 4th. Present: Drs. Poyntz, Skillman, Witherspoon, Patterson and Kelley. There was free blood in the cavity, and in the pelvis everything was matted together. On separating adhesions, and delivering the tube and placenta, hemorrhage was great, and the pulse became weak and rapid. The placenta was still attached to the tube, and also to the intestine: the fœtus was felt deep in the pelvis, and was delivered. It was three and a half inches long, a male, and at least three months in its development. The right tube and ovary were diseased and adherent, and were removed. The uterus felt like a cyst, and was as large as the fist. Intra-uterine pregnancy was thought probable. The omentum was considerably torn in freeing it from adhesions, and a part of it was ligated and cut off. Several gallons of water were used in the irrigation and a glass tube inserted. The patient was very much shocked; was put to bed sweating profusely, with a weak and rapid pulse. She reacted slowly, but the pulse remained about 150 for two days. Six hours after the operation active uterine pains set in, with free bleeding from the vagina. Gave by enema an ounce of fluid extract black haw and a hypodermic of morphine. This quieted her for twenty-four hours, but the pains and bleeding returned; gave another hypodermic. No return of the pains, but for several days there was slight bleeding. From this time convalescence was uneventful, and the patient is now well. I be-

lieve there is intra-uterine pregnancy.

Remarks: The cases here reported have come to me during the past five months. In all, save one, the diagnosis was comparatively easy, and in every instance the patient consented readily to the treatment proposed. To the prompt resort to surgery I attribute largely the successful results obtained. In discussing the subject of extra-uterine pregnancy I do so mainly as my cases bear on the subject. To attempt to discuss the subject fully is out of the question, and I hope my remarks will be practical and to the point. The cause of extra-uterine pregnancy is almost invariably tubal disease. The lining membrane is congested and swollen and its epithelium destroyed, so the impregnated ovule finds a favorable surface for its implantation. As a rule the evidence of tubal disease is slight, not often requiring the patient to seek the advice of a physician. Careful inquiry will, however, elicit the fact that there has been more or less pelvic pain, or some symptom indicative of tubal disease previous to the impregnation. If the usually accepted physiology of the tube and its epithelium, and of fecundation, be true, it can be readily seen how the tubal disease may be responsible for extra-uterine pregnancy. In many cases no cause can be traced, the woman has been free from pelvic symptoms, and the first evidence of the trouble is tubal rupture. Dependent upon the tubal disease, or upon a frequent co-existing endometritis, there is often sterility, this being true of the cases reported in this paper. Extra-uterine pregnancy is certainly more frequent than is usually believed by the profession. Most physicians in active practice have met with these cases, and often have failed to recognize them, the cause of death being attributed to idiopathic

peritonitis or some other condition. Formad, in 3,500 general autopsies, found the cause of death in thirty-five to be tubal pregnancies.

Hematocele and pelvic hematoma are almost invariably ruptured pregnancies. So are some pelvic abscesses due to this cause. As many as a dozen varieties of extra-uterine pregnancy have been mentioned, but practically the tubal is the only one to be considered. With the possible exception of the ovarian, all extra-uterine pregnancies are tubal in the beginning, and only after tubal abortion or rupture do we find some one of the varieties mentioned. The ovum may implant itself in any part of the tube: if in that part passing through uterine tissue we have the interstitial variety of tubal pregnancy. Upon the early recognition of this condition depends its successful treatment. Without surgery the mortality is

great, probably eighty per cent: with timely interference nearly all recover. With disaster on the one hand and brilliant results on the other, every practitioner of medicine should be on the alert and use every known method to make a diagnosis, and make it early. The result of no abdominal operation is more gratifying to the patient or to the surgeon than a timely operation for extra-uterine pregnancy. Before rupture the operation is one of the easiest: if delayed, it may be one of the most difficult. If systematic in obtaining the history and thorough in our examination (an anæsthetic should be given if in doubt), the diagnosis in many cases can be made before rupture. Of course, in the cataclysmic cases the diagnosis is made from the symptoms caused by the hæmorrhage.

[Continued in next number.]

BOOK REVIEWS.

(All Exchanges and Books for Review should be sent to Dr. C. G. CUMSTON, 826 Beacon St., Boston.)

TWENTIETH CENTURY PRACTICE OF MEDICINE. Vol. IV. Diseases of the Vascular System and Thyroid Gland. New York, 1895. Wm. Wood & Co., publishers.

We must confess that this volume has decidedly dropped from the standard of the three previous volumes of this work. The contributions from Dr. Whittaker on the heart are very stale, and the writer at each moment repeats himself, and much matter could have very well been omitted and replaced by newer facts.

Dr. Sansoms's section on the diseases of the blood-vessels is fairly

good, but as we might expect from an English author, he is behind the times.

Dr. Bertrand Dorson's chapter on the diseases of the lymphatics is too incomplete to be noticed, while Dr. G. R. Murray's article on the diseases of the thyroid gland would have met with better fortune had it been given to a man who had had greater knowledge of the subject.

THE 1896 INTERNATIONAL MEDICAL ANNUAL.

E. B. Treat, publisher, New York, has in press for early publication the

1896 *International Medical Annual*, being the fourteenth yearly issue of this eminently useful work. Since the first issue of this one volume reference work, each year has witnessed marked improvements; and the prospectus of the forthcoming volume gives promise that it will surpass any of its predecessors. It will be the conjoint authorship of forty distinguished specialists, selected from the most eminent physicians and surgeons of America, England and the Continent. It will contain reports of the progress of medical science at home and abroad, together with a large number of original articles and reviews on subjects with which the several authors are especially associated. In short, the design of the book is, while not neglecting the specialist, to bring the general practitioner into direct communication with those who are advancing the science of medicine, so he may be furnished with all that is worthy of preservation, as reliable aids in his daily work. Illustrations in black and colors will be consistently used wherever helpful in elucidating the text. Altogether it makes a most useful, if not absolutely indispensable, investment for the medical practitioner. The price will remain the same as previous issues, \$2.75.

ANNUAL OF THE UNIVERSAL MEDICAL SCIENCES for 1895, 5 volumes. Edited by CHARLES E. SAJOUS, M. D., Philadelphia, 1895. The F. A. Davis Co., Publishers.

It always gives us pleasure to mention this important and useful yearly publication.

The judicious selection of the contributors of the various sections is a marked feature of the work.

This year's "Annual" fully comes up to our expectations and, like the

former issues, is to be most heartily welcomed by all those interested in the medical sciences.

LA PRATIQUE GYNÉCOLOGIQUE DANS LES HOPITAUX DE PARIS. Aide-mémoire et formulaire de thérapeutique appliquée, par le professeur Paul Lefert, 1 vol. in-16 de 288 pages, cartonné. Price 3 fr. I. B. Baillière et Fils, 19, me Hantefenille, publishers, Paris, 1895.

This excellent little volume contains the teachings of sixty of the staff of the Hospitals of Paris, and gives a very good resumé of French gynecological therapeutics.

For the practitioner we consider it a most excellent guide to the treatment of diseases peculiar to women as the indications given come from recognized authorities, the style being clear and concise.

We commend the book.

PREGNANCY, LABOR, AND THE PUERPERAL STATE. By EGBERT H. GRANDIN, M. D., Consulting Surgeon to the New York Maternity Hospital; Consulting Gynecologist to the French Hospital, N. Y., etc.; and GEORGE W. JARMAN, M. D., Obstetric Surgeon to the New York Maternity Hospital; Gynecologist to the Cancer Hospital, N. Y., etc. Illustrated with forty-one (41) Original Full-page Photographic Plates from Nature. Royal Octavo, Pages viii, 261. Cloth, \$2.50 net. Philadelphia: The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street.

This work is good, although rather incomplete in a certain way.

As an introduction to the study of *practical obstetrics* for the student, it can be recommended.

The photographic reproductions are excellent, although they show that perfect asepsis is not carried out by the authors as it should be, for we remark, in some of the plates, that the operators are assisted by gentlemen in their shirts, without any operating gown.

We repeat that as an *introduction* to the study of obstetrics the work may be recommended to the student, as all that is contained in its pages is most practical and the *clinical* part of the art well exposed.

AMERICAN TEXT BOOK OF OBSTETRICS. Edited by RICHARD C. NORRIS, M. D., Philadelphia, 1895. W. B. Saunders, publisher. For sale by subscription only. Price, cloth, \$7.00.

We have before us as fine a treatise on obstetrics as could be desired, and one that does honor to the American medical profession.

No work on the subject has so thoroughly met with our approval, since the excellent treatise by Ribemont Dessaignes et Lepage in 1894, as this one.

The science and art of obstetrics are so elaborately and thoroughly put forth in the "Text Book," and the plates and engravings are so fine, that no criticism is required.

The list of contributors are men of

known authority and ability, and are quite enough to give to the work the great reputation that it will acquire in a very short time.

MANUAL OF GYNÆCOLOGY. By HENRY T. BYFORD, M. D., Professor of Gynæcology in the College of Physicians and Surgeons, Chicago, etc. Philadelphia, 1895. P. Bleakiston, Son & Co., publishers. Price, \$2.50.

From the fact that the "Manual" was written by Dr. Byford, we expected something good, and we are in no way disappointed.

In the 488 pages of the book we find the subject of gynæcology treated in a very attractive manner. The work is clear, concise, and covers its subject well.

It is abundantly and well illustrated, and can be highly recommended to both student and practitioner.

APPENDIX TO DUNGLISON'S MEDICAL DICTIONARY. Philadelphia, 1895, Lea Brothers & Co., publishers.

We have received an appendix of 24 pages to the well known Dunglison Dictionary.

This addition will render the work still more complete.

ANNALS

—OF—

GYNÆCOLOGY AND PÆDIATRY.

DEPARTMENT OF PÆDIATRY.

REVIEW OF PÆDIATRY.

INTESTINAL OBSTRUCTION IN CHILDREN.

Monti, after discussing the causes and general symptoms of intestinal obstruction in children, and accepting in the main the views of Leichtenstern, gives the following points as those which are of value in forming an opinion as to the site of the obstruction:

1. In the lower part of the colon the first symptom of acute obstruction is painful colic, and the region of the abdomen in which the colic is first felt may afford some indication of the part of the colon obstructed. Vomiting does not occur until the colic has lasted for some hours or days: it is at first bile-stained, then becomes foul, and finally feculent. Collapse sets in late: gaseous distension of the intestine begins in the colon, and at first it may be possible to make out that it is limited to the region occupied by the colon (flanks and epigastrium), but later the ileum also becomes distended, and the tympanites may reach a very high degree. In incomplete obstruction the symptoms are the same, but develop more slowly. Action of the bowels may occur, and be attended by temporary relief, especially of the

tympanites. If the rectum be incompletely obstructed, constipation alternates with attacks of painful tenesmus, followed by the passage of small scybala. Circular constriction of the rectum causes the motions to be of small caliber.

2. Acute obstruction in the lower part of the ileum is attended with frequent attacks of painful colic, starting in the ileo cecal region. Each paroxysm of colic induces an attack of vomiting, the vomited matter being at first the contents of the stomach, but later faecal. Collapse sets in early. The distension of the abdomen is most marked at first in the umbilical and hypogastric regions, but in time becomes general: it is not notably diminished by vomiting. At first several faecal stools may be passed, but after a few days there is complete constipation. The quantity of urine is diminished after the first few hours or days, and there may eventually be suppression. When the obstruction is incomplete the colic may be severe, and the movement of the coils of the intestines perceptible. The degree of distension may vary greatly in a very short time, and this independently of the passage of a stool. The constipation after last-

ing some days may be succeeded by copious foul diarrhœa.

3. Acute obstruction in the duodenum or jejunum causes severe colicky pain, starting about the umbilicus and radiating towards the stomach. Vomiting comes on early and is violent; the vomited matter is at first bile-stained; later it becomes foul smelling. Gaseous distension is slight, and is limited to the epigastrium. It may be very much diminished by vomiting, but collects again. The bowels may at first act spontaneously or after enema, but eventually there is complete constipation. Suppression of urine is established early. When the obstruction is not complete, the symptoms are similar, but less severe. The colic is painful, and the vomiting, either in relation with colic or independently, very frequent. The quantity of urine is diminished. There is no distension of the abdomen and diarrhœa alternates with constipation. Monti considers that if a case is seen early much may be learned as to the probable seat of the obstruction by observing the way in which the tympanites develops.—*The Southern Clinic*, 1895.

TUBERCULOSIS OF THE BRONCHIAL GLANDS. By DR. MARFAN (JOUR. DE CLIN. ET DE THER. INFANTILES. No. 6, 1895.)

When this condition is not complicated by fever or involvement of the lung tissue, children do the best when they are sent to the seashore or the country; but if at the seaside they should not bathe in the sea and should be as quiet as is consistent with a life in the open air. Brisk friction of the skin should be employed with the towel, the dry hand, or with alcohol, the aim being to keep the skin in the best condition as well as to bring about a reflex stimu-

lation of the centers governing general nutrition. Proper feeding is very important, and due regard should be had to the condition of the digestion. Marfan particularly values the iodotannic syrup of the French pharmacopeia in the treatment of this condition, giving two teaspoonfuls per day to infants and twice that quantity to children over three years of age. This may be followed after three to four weeks by an emulsion of calcium lacto-phosphate and cod-liver oil; this again after about the same length of time may give way to the previous medications. Still later, if the digestion permits, the arseniate of soda may be given. Counter-irritation between the shoulder blades with iodine, vesicants, or the actual cautery has a favorable influence upon the glands. If the cough due to the pressure of the glands be severe and spasmodic, the tincture of belladonna will be of assistance. Inhalations of chloroform or ether may be cautiously used to combat violent dyspnea of the suffocative type. When pulmonary tuberculosis is evidently present one must resort to the use of creosote or guaiacol, which the author gives preferably per rectum. When administering them hypodermatically, he adds a small amount of iodoform in the proportion of 1 to 10 of the creosote or guaiacol, dissolved in oil of sweet almonds, injecting it every second day. The formula is:

Guaiacol or Creosote . . .	1.50 Gme.
Iodoform05 Gme.
Oil of Sweet Almonds . . .	10.00 Gme.

From one to three cubic centimetres of the mixture are injected, according to the age of the child.

Fever is favorably influenced by painting the skin with guaiacol. For a child of four years two applications

may be made, at two and five o'clock, painting each time an area not larger than a silver dollar, lest collapse be produced.

TREATMENT OF MEASLES.

Dr. Sevestre (*La France Méd.*) would have the little patient placed in a large-sized room where there will be no exposure to draught. In summer, during the warm portion of the day, the windows may be left open, while in winter the temperature of the room should be kept even and the room well ventilated. Do not allow the patient to become uncovered. Keep children in bed ten to fifteen days after the appearances of the eruption, allowing them first to go out twenty to twenty-five days after its appearance. The child's mouth should be washed with an antiseptic solution. Porridges, milk, and occasionally an egg will be sufficient as a diet. As soon as desquamation sets in rub the child with borated vaseline and give one or two baths containing borax. Medical treatment is purely symptomatic. For the diarrhœa at the beginning of the disease, lessen the amount of food, apply hot fomentations to the abdomen, give a rectal injection and internally the subnitrate of bismuth with or without opium. In case the cough be very distressing, then prescribe :

R Tinct. aconite rad., gtt. x-xx.
Ext. opii, . . . gr. 1-3-3-4.
Syrup ether, . . . 3 iiss-v.
Mucilaginous mixture, 3 ij.

M. Sig. To be taken by the teaspoonful.

Hot fomentations to the neck and chest, opiates according to the age of the patient, the bromides or inhalation of steam, are also useful. If the conjunctivitis be very intense, use compresses with a tepid boric acid

solution. In case the coryza be severe, irrigate the nose with a warm solution of salicylic acid (1:1000). For the convulsions and nervous erethism employ lukewarm baths, local application of water of the temperature of the room and the bromides. If the eruption is slow in coming out, look for the cause and administer diffusible stimulants, as the acetate of ammonia, hot infusions, etc.

THE TREATMENT OF ASTHMA IN CHILDREN.

PERIER (*Journal de Méd. de Paris*, March 31, 1895) gives the following directions for the treatment of this condition in children :

I. During the simple asthmatic crisis.

1. Open the windows and give the patient air, without, however, producing a draught, and apply mustard poultices and plasters to the limbs.

2. If the windows cannot be opened, and if the poultices do not produce the desired result, fumigate with datura, nitrate-paper, or pour out some drops of pyridine, of ether, of iodide of ethyl (in the case of older children) in the neighborhood of the child, upon a handkerchief or a saucer. The author has often helped a patient who was obliged to live in an overheated atmosphere, by placing over an alcohol-lamp, and keeping constantly boiling, a large dish of water containing leaves of eucalyptus.

3. Give the following portion every quarter of an hour in dessert-spoonful doses :

R Tr. belladonæ, gtt. v to x;
Tr. grindelæ, gtt. x to xx;
Tr. lobeliæ, gtt. xx to xxx;
Syr. etheris, 3 iiss to 3 v;
Syr. aurantii florum, 3 v;
Aquæ calcis, 3 ii. 3 viiss.

4. If there is no improvement give a dose of antipyrin proportionate to the age of the child (1 1-2 grains for each year of the age [?]) in sweetened water.

II. In crises accompanied by acute bronchitis or pulmonary congestion.

1. Cover the chest with mustard cataplasms or dry cuppings.

2. Fumigations and inhalations, as in the foregoing case.

3. Every quarter of an hour a tea- or dessertspoonful of the following :

R Tr. belladonnæ, gtt. v to x;
Syr. ipecacuanhæ,
Syr. etheris,
Syr. codeinæ, of each, 3 iiss;
Syr. aurantii florum, f 3 ii;
Liquor calcis, f 3 ii.

III. In simple spasmodic asthma outside of the crises.

1. Give before lunch and dinner a tea or dessertspoonful of the following for fifteen days :

R Potass. iodidi, 3 i to 3 iiss;
Syr. toluani,
Syr. aurantii, of each f 3 iii.

2. During the next fifteen days a teaspoonful of the following before lunch and dinner :

R Sodii arsenatis, gr. 5-6;
Aque destillata, f 3 viiss.

To be taken in a little malt extract or bitter beer.

3. Two days of the week suspend the treatment and give a teaspoonful of the following laxative :

R Sulphur sublimat.,
Potassii bitartr.,
Magnes. calc., of each, 3 xv;
Pulv. anis., 3 ss.

4. A simple diet, from which are excluded spiced and highly-seasoned meats, fish, etc.

5. Frictions each morning over

the whole body with flannel or hair gloves.

6. Exercise as much as possible in the open air.

7. The summer spent in high altitudes.

IV. Asthma with chronic bronchitis and emphysema.

1. Treatment as given above, with the addition of the following :

2. Every morning for fifteen days a quarter of a glass of Labrassere water in hot milk.

3. During the next fifteen days a dessertspoonful of the following in milk :

R Calcii iodidi, 3 i to 3 iiss;
Syr. toluani,
Syr. capillorum, of each, f 3 iii;
Syr. codeinæ, f 3 i to f 3 iiss.

4. Every second day paint alternately the anterior and posterior aspects of the chest with tincture of iodine.

5. Baths of compressed air.

6. In summer a vacation in a region of medium altitude.

V. Asthma in malarial subjects.

1. General treatment as for Class III., with the insistence on the use of the arsenical formula for twenty days to ten of the iodide.

2. During the period of incubation give twice daily of quinine hydrochloro-sulphate, two to five grains, in capsules or suppositories, or as follows :

R Quininæ hydrochloro-sulphatis,
gr. iii to vi;
Syrup. rubi idæi, f 3 i;
Aq. dest., f 3 ii.

Sig.—A dessertspoonful every hour and the measures additional as employed in I.

VI. Hay fever.

1. During the oncoming of the attack introduce into the nares absorbent cotton saturated with the following :

- R Cocaine hydrochlor, gr., viiss;
Cherry-laurel water. $\frac{5}{3}$ iiss. Sig.—A dessertspoonful every half-hour.
2. Give the following: or quinine may be given as above.
- R Antipyrin, gr. viiss to xv;
Syr. aurantii,
Aq. destillatæ, of each $\frac{5}{3}$ iiss. 3. Send the child to the mountains or to the sea.
4. Look carefully for the cause,—
gout, neuritis, hypertrophic rhinitis.

ANNALS

—OF—

GYNÆCOLOGY AND PÆDIATRY.

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No 4

ORIGINAL COMMUNICATIONS.

Discussion on Vaginal Hysterectomy for Pyo-salpinx and for Uterine Myomata.

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BOSTON.

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PRESENT opinion in France is very favorable to this method. I will not say that its adoption there has not been helped a little by being a French method. I saw a great deal of good work in Paris last summer. My methods of operating will be profoundly influenced by what I saw.

It must not be forgotten, however, that this method has made its way in France against the most violent opposition. When first introduced by Pean, it was opposed by most of the leading surgeons there, but gradually one after another was converted and led to see the advantages of this procedure. The records of the Surgical Society of Paris and of the

French Congresses of Surgery show that the same arguments and objections which are now made in this country against this procedure were made vehemently and earnestly a few years ago by eminent French surgeons who now favor and use this method of operating.

In Germany there is Landau who has adopted this system, and they call it there by his name. He has done very good work, but in a great many cases he opens the abdomen to finish. He is not content with leaving any of the diseased tissue, and opens the abdomen to finish his operation in all cases where he cannot remove the diseased appendages through the vagina.

In this country the method is gaining a foothold in New York, Chicago, Pittsburg, and a little in Boston; I hope to make it better known here. The bulk of the work of conversion is yet to come, however.

Now, the question has arisen, why should we change our methods when we know a way (the abdominal way) by which we can see what we are doing; for almost all of our pus cases that are not septic or moribund are going to get well if the abdominal operation is properly done. What advantage is there for anybody, especially since the vaginal operation is a more difficult one for the surgeon? It requires a higher degree of technical skill; it has certain dangers of hæmorrhage, not necessarily very great if you know just how to meet them; still the blood does come pretty fast sometimes, although if the clamp is applied in the right place the hæmorrhage can always be controlled. By the abdominal method, however, one ought not to run much danger of hæmorrhage.

The advantages are a certain freedom from shock. There is no doubt in my mind that there is less shock with the vaginal than with the abdominal operation. Just why it is that cutting through the abdominal wall causes shock, it is not easy to say; but it is certain that there is less shock from cutting through the vault of the vagina. In the removal of the uterus through the vagina for carcinoma, for instance, I think everybody will admit that there is

less shock to the woman than in the removal through the abdomen.

The danger of hernia in the abdominal wound is considerable. We have all seen or heard of many such cases. The avoidance of the risk of hernia by vaginal hysterectomy is a very important matter.

Then there is the freedom from the abdominal scar. I was prompted myself to stigmatize the desire to avoid the scar, as Frenchy, in my remarks in this room last spring, meaning that the mere dislike of the woman to have a scar as a blemish on the abdomen was not a reasonable motive for altering one's plan of operation, and this is so from our point of view; but the women have something to say about this, and in inquiring into the reasons which have brought about this change, we find that it is partly because the women have insisted on it. They know how the operation is done, and that it can be done without a scar on the abdomen, and they are bound to have it performed so, and therefore they have their way, as usual.

The freedom from shock, hernia and scar, are therefore the main advantages. Now come the disadvantages, — the greater amount of skill required, and the large number of instruments needed. There is the danger of hæmorrhage in the hands of one who is not a master of the operation, who does not have a good eyesight or is not handy with the clamps, and does not know where the hæmorrhage is coming from. It is

advisable to see the operation done a number of times, and be very familiar with the use of the clamps. Skilled and experienced assistants are also really indispensable.

Then comes the danger from adhesions. I could understand the method of removing fibroids, but how to get out an adherent pus tube from below was what I could not comprehend until I saw it done. But the principle is very easy. In relation to the uterus, one tube is generally down at the side; one may be higher up. Now, in whatever manner the tube may be adherent, the place where it is attached is always the same, low down, about one and one-half inches above the insertion of the uterine artery is always the point of attachment of the tube. When we are trying to enucleate the tube and bring it up in abdominal section, what makes the difficulty is that we have to go down and lift up that tube and free it from attachments in the bottom of the pelvis, which we cannot very readily get at, and we must separate first the attachments to the bowel. If the intestine is adherent to the uterus, when we liberate it we try to keep the bowel intact, we leave a big, heavy bleeding uterus, and I think it has happened to many to get a tube out and have the uterus in such a state that they did not dare to leave it. When you work from below, the uterus comes down first. What is there then to keep the tube? If the bowel is adherent that can come down too. If the bowel is particularly adherent to the uterus one can snip off

a little of the uterus and leave it attached to the bowel, which cannot be done from above unless hysterectomy is to be performed. It is not done blindly but by sight. After the uterus is out the tube must be brought down. There is a good space in which to work. It is brought down little by little, and presently the tube comes down where one can see it. The place where the clamp goes is always the same, at the insertion on the pelvic wall, compressing the spermatic artery. In that way it is possible to attack the difficult cases, and I did not see at any time that the French operators had to leave any of the tube. Sometimes the abscess sac may have to be left, but there are just as many cases where that is left when working from above. The contention is this, that in cases where the abscess sac is left after vaginal hysterectomy there is a great free opening downwards for drainage, thus avoiding sepsis.

I have in mind three women on whom I have operated by abdominal section for pelvic abscess, who I think would be living today if I had known what I now know. When I began operating, I used the aspirating needle, followed by thermocautery to enter a pelvic abscess, dilating the opening thus made: curetting and draining the abscess cavity. Then came celebrated operators who said these cases were all pus tubes and must be operated from above. In such case we find the bowels matted together and we work down and get through these and then open into

a great cavity with pus in it, reaching down into the cul-de-sac of Douglas. In that cavity somewhere is the thick tube or sac formed of the ovary. Finally we remove all diseased tissue and the woman dies that night of shock. That has happened to me three times. Now in operating on these cases from below, the uterus is removed first, not all at once perhaps, but in a dozen pieces or so, the pus escapes even before the uterus is removed altogether. It is held against this French operation that in some case we leave some of the tube or some of the abscess sac. These are cases, in which by abdominal section, if we try to do a thorough and finished operation, we lose the patient. Those cases are the same ones where we could not remove all the diseased tissue from below, but in the ordinary pus tubes and ovarian abscesses we can get all that is diseased out just as nicely from below as from above, usually even better.

Now, there is one thing which is felt more in this country than abroad, and that is the discomfort of clamps for forty-eight hours after the operation. There is more discomfort with clamps than with drainage tubes. In Europe the women are not so nervous, and in the next place they accept suffering more resignedly. Our women are more nervous and more determined to avoid suffering, and thus are relatively more annoyed by clamps. On the other hand, there having been little or no abdominal shock, the whole operation having

been performed without exposing the bowels or opening the anterior abdomen at all, there is not so much reason why we should not give morphia. After an abdominal section if we give morphine we may cause paralysis of the intestine. In a great many cases where there are not pus tubes, but the operation is done for old salpingitis with adherent retroverted uterus and thick tubes, and for other things of that kind, and also in operations for fibroids, the whole procedure of vaginal hysterectomy, including morcellation, can be done without clamps, by using ligatures, bringing the incision together with sutures, as I have done repeatedly.

As to the method of performing this operation of morcellation, there are three principal ways: Pean's, Mueller-Quenu's, and Doyen's. Pean's original operation is as follows: He makes a circular incision around the cervix, separates the bladder anteriorly and the rectum posteriorly from the uterus, and clamps the lower part of each broad ligament, then he splits up the uterus on each side; getting hold then with forceps high up on the anterior portion, he will cut the posterior flap away. As soon as the posterior portion is removed the uterus can be made to roll a little forward. As the uterus rolls forward the bladder is dissected away and the anterior cul-de-sac opened, then a narrow speculum bent at a right angle is put in, and lifts the bladder out of the way. Then the operator cuts off the anterior flap, and getting hold with forceps on each

side of the stump, pulls it down. Then the whole process is repeated. Each time before cutting laterally a clamp is laid on the broad ligament, so that there is no bleeding as the uterus comes down. In difficult cases one cannot always get on in that way, and then comes the principle of splitting the anterior flap vertically in the middle. If the uterus is split in the middle anteriorly after the lower portion has been removed, it comes down very much more. The minute the consistency of the uterus is broken by splitting it, each part will come down separately, more than the whole organ would do.

The procedure of Quenu is an amplification of that of Mueller, who proceeded years ago to split the uterus and tie each ligament separately. At the meeting of the British Medical Association in London, last summer, in a discussion of this question, I pointed out that as far as bringing the fundus out through the anterior cul-de-sac, Mueller and Fritsch described that years ago. So it is not anything so particularly new, except that Mueller and Fritsch limited their procedures to free uteri affected with cancer, and now their methods are combined and extended to adherent uteri. Quenu splits the uterus in the median line anteriorly, and extracts the uterus by repeatedly getting a new hold with vulsella forceps as the uterus comes down. He does not do any lateral division of the uterus, but puts on clamps from below upward, removing the lower portion of the cervix as he proceeds.

Almost all of the other operators put the clamps on as follows: one short pair on each side holds the lower part of the broad ligament and prevents all bleeding. When the uterus is brought outside, another clamp from above is put downward externally to the ovary if possible, so as to meet the first one, and if a little blood comes in the middle you know where it comes from and it is easy to put a third clamp on. The process of Doyen is to split the uterus anteriorly, and thus to bring the whole uterus outside before he clamps anything, and then he takes a long clamp and puts it on from above downward, trying to get the broad ligament and round ligament and leaving the ovary and tube on the uterus above, and to prevent it from slipping off he puts a little clamp on the free end of the stump of the broad ligament. That seems to me a thoroughly bad way on account of the semi-circular twisting of the ligament, and there have been a number of cases reported in which bleeding has occurred from slipping of the clamps or tearing of the ligaments. If you use long clamps from below you cannot turn the uterus forward until you have cut the tissues clear to the end of the clamp, and this cannot be done under control of sight, therefore the whole principle of morcellation is to have clamps with short jaws, so that each will take a limited piece of the broad ligament, and never let go of the upper portion of the uterus as the lower parts are successively removed. One thing that is important is to have the

vulsella forceps made so that it will not prick the fingers. Then the next thing is to have good heavy scissors for fibroid work. The specula are not so important, but there are cases in which the best patterns are highly necessary.

In removing myomata by vaginal hysterectomy, the principle is the same with modifications in the procedure, because the fibroid is bigger. The first incision is the same and so is the application of the first pair of clamps and of the speculum in front to keep the bladder out of the way. The morcellation proceeds by the same rules, but is longer and more difficult, nevertheless the whole fibroid and the uterus and adnexa can be removed in this way without shock or exposure of the intestines. For the morcellation of the myoma, very strong curved scissors are required, and often it is better to use a long knife curved on the flat: with this the myomatous nodules are separated from their attachments and the fibrous structure of the tumor sundered. With strong vulsella forceps the various pieces are brought out, and then they are cut off. Thus the part of the tumor presenting in the vagina is attacked, sundered and removed, while as each portion is taken away another is brought down to the opening, until finally what remains of the tumor is delivered, like a child's head, in one mass. The whole morcellation goes on within the capsule of the tumor, and the intestines only appear at the end when the mass is delivered.

I know of no operation requiring

more nerve and skill and anatomical knowledge than the morcellation of a myoma of considerable size, but when it is over, if properly performed, it is certain that the patient has less shock and is in a better condition than if the tumor had been removed through the abdominal wall. The specimen which I show, of the size of a cocoanut and removed in 30 pieces, represents the limit as to size which I should care to operate on in this way. The particular advantage of the procedure is the ease and safety with which it enables us to remove small myomata of the size of the two fists or thereabouts. No tumors should be hereafter allowed to get much larger.

It is interesting to observe how abdominal hysterectomy is performed in France, by the best of operators, for perhaps their preference of vaginal hysterectomy is partially based on not being acquainted with the latest methods of abdominal hysterectomy.

I saw Bouilly tie the ovarian arteries, put a rubber ligature around the stump of the uterus, cut the stump off, disinfect with a cautery, rub iodoform into it and drop it, and the woman made a good recovery. He told me the theory was this: He put the rubber ligature round the stump and dropped it and sewed up the abdominal wound. If the woman were in good condition it would be a matter of a few minutes to open the vagina and take that stump out from below, using clamps. In this case the woman not being in good condition the rubber ligature was left and the patient recovered.

The second method, that of Richelot, is ingenious. He opens the abdomen and if the fibroid is large he does not try to make an opening large enough to let it through, but cuts out pieces from the fibroid. After delivering the tumor, he peels off the bladder, reflecting the peritoneum down to the vaginal junction, which he cuts through into the vagina. Then he introduces a long curved clamp into the vagina, and through the opening in the anterior fornix, and pushes the posterior blade of the clamp through the broad ligament, below the course of the uterine artery; the other blade entering from the front passes along the anterior face of the broad ligament: when the clamps are closed on each side he cuts the tumor out from between them and then comes blood from the posterior vaginal arteries. To check this he reaches in from above and finds the artery and then puts on another clamp from below to hold it, taking away the clamp which was put on from above.

Péan has a peculiar method: He drags out the tumor through the abdominal incision by piercing it with a huge curved needle, with the eye at the point, on a handle, then he reflects the bladder close down to the cervix and thrusts the needle through the cervix as low down as possible: then an iron wire is threaded through

the eye of the needle and drawn back and cut in two. That leaves the cervix with a loop of wire on each side. The ends of each of these loops he puts into a tourniquet, including the whole broad ligament, together with the tube and ovary, in the loop; he thus constricts the broad ligaments with a tourniquet on each side and then cuts away the whole tumor including the cervix. Next he introduces a clamp on each side, or two if necessary, through the vagina, placing them on the broad ligaments to control the arteries, and then removes the wire loops.

These seem to be the three principal ways of doing an abdominal hysterectomy in Paris, although the perfected American method of tying the arteries from above has been introduced by one operator very lately; yet it is practically not known, and in consequence the vaginal method is preferred, even in cases in which an operator having equal familiarity with our way of doing abdominal hysterectomy, would probably prefer it. It is of the greatest importance that the operators of each country should learn the best that those of the other country have to offer, so that finally the indications of the best method in any given case may be established, and surgery may thus be perfected.

The Urinary Troubles produced by Prolapsus of the Genital Organs.

A CLINICAL LECTURE DELIVERED ON NOV. 9, 1895. BY

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GENTLEMEN:—We have this morning a patient that I am about to bring before you, whose case is most interesting in many respects. She has a prolapsus of the genital organs in its initial stage.

She is thirty-seven years of age and the mother of eight children. She has never miscarried and her general health has always been excellent, while after close questioning I can obtain no history of any uterine or tubo-ovarian lesions.

The reason that our patient comes to us today is for our opinion regarding a *sensation of bearing down* in the pelvis and a *dysuria*.

On examination, you notice that the anterior vaginal wall protrudes from the entrance of the genital canal, and I would particularly call your attention to the meatus, which has a decidedly upward direction.

Introducing the index finger into the vagina, I come on to the cervix at about four centimetres above the vulva. It presents a complete bilateral laceration, but is not hypertrophied.

The corpus uteri is found of normal size, the culs-de-sac are perfectly free, and nothing but normal tubes and ovaries are to be palpated. The uterus is very movable, too much so, by far, and is inclined to tip backward on the rectum.

This great relaxation of the vaginal walls and broad ligaments is in all probability due to the repeated labors, for remember the patient is but thirty-seven and has given birth to eight children at term.

In this case two symptoms are present, namely, bearing down pains in the pelvis and dysuria.

The prolapsus is only at its début and can be remedied by a plastic operation on the vaginal walls, and at the same time an Emmet's operation on the cervix must be done.

The patient will be prepared for this surgical interference by antiseptic vaginal irrigations, followed by packing of the canal with steril gauze for about a week, after which I shall perform the operation.

The dysuria is a most important and neglected symptom of prolapsus.

and with your permission I will take up the remainder of the hour with some considerations regarding the urinary troubles which are produced by the condition presented in the case before us.

Prolapsus uteri is rarely primary and usually *follows* a prolapsus of the vaginal walls. Sometimes it is the anterior, as in the case which I have just shown you; at others it is the posterior vaginal wall or even both at the same time, which unfold themselves, so to speak, and by so doing draw upon the uterus on which they are attached.

When the broad ligaments are sufficiently solid and not relaxed, the uterus resists, for a time at least, the traction exercised on it by the relaxed vaginal walls, and will remain fairly well up. But little by little the cervix reaches the vulva, in which case you will often find it hypertrophied, while the fundus is normally situated in the pelvis.

The urinary troubles met with in these cases are the same as those occurring in prolapsus properly speaking.

As you know, vaginal prolapsus is produced by too frequent labors, rupture of the perineum, etc., or in neurasthenia, in which case you will probably find other viscera in a state of ptosis. There is another factor in the production of this affection which should also be remembered, and that is a permanent and exaggerated repletion of the bladder, a frequent occurrence in females, and which acts by pushing the uterus backwards,

thus placing it in the axis of the vagina and facilitating its prolapsus.

In prolapsus of the vagina it is usually the anterior wall that first falls; the posterior (reposing on the perineal floor) is held in place when the latter is not ruptured. Prolapsus of the anterior wall is almost always followed by that of the posterior wall of the bladder, which explains the production of the urinary complications of which I am going to speak. But let me add that there are cases in which you will find the cervix at the vulva without there being any complication in urinating, as for example in cases of hypertrophy of the lower segment, as Schreder has described.

As you probably know, this German gynaecologist divided the cervix into three sections, each of which may become separately hypertrophied. The lower segment, being situated entirely below the insertion of the vagina and having consequently no relation to the bladder, may be in a high degree of hypertrophy without giving rise to bladder symptoms. But other than in these rare cases urinary symptoms are most generally met with in utero-vaginal prolapsus.

When there is prolapsus, the urethra, instead of being directed from above downwards and from behind forwards, as it is in the normal condition, may present more or less pronounced inflexions, and forms a curve with the concavity uppermost and especially very flexed at the point where it traverses the sub-pubic ligament and Wilson's muscle.

This concavity of the urethra, which is just the opposite to the normal curve, is generally present in cystocele as in the patient just shown, and when you go to pass a catheter into these patients, the proximal end of the instrument must always be raised very high up in order to entirely empty the bladder, a thing which you will not always be able to accomplish.

That portion of the bladder which adheres to the upper part of the vaginal wall and to the lower part of the uterus is drawn down with these organs, and may thus present a true diverticulum, forming with the principal pouch a kind of *hour-glass bladder*.

In cases of hypertrophic elongation of the cervix, the increase in size of the neck of the womb compresses this vesical diverticulum to such an extent that its walls are pressed together and so firmly against the lower border of the pubis that the urine cannot enter the lower pouch: when it has been possible to make the catheter enter this secondary reservoir, which is most difficult to accomplish, only a very little urine or none at all will be withdrawn.

In other cases the urine will remain in the diverticulum during micturition, and by prolonged stagnation may set up a vesical catarrh, and which latter condition may be the means of formation of calculus, as I shall soon point out.

Beside the cases in which the bladder is either displaced or modified in shape, I must not neglect to

mention others in which the relations of the bladder have become changed. Generally speaking the bladder, when drawn down by the uterus in prolapsus, retains its normal relations to the latter organ; but it may also happen that the uterus slides behind the bladder, which remains in its normal position, and there consequently is a change in the relations of the two organs which you must always have before your minds in order to avoid injuring the bladder during surgical interference.

On account of the changes in shape and situation of the bladder, the ureters may also be compressed at their lower extremity, and if the compression is kept up, and is severe, dilatation of these canals, extending more or less high up may occur, with hydronephrosis as an ultimate result.

However, in such cases, which are infrequent, it is well to take into consideration the general health of the subject, which possibly may be the factor in the relaxation of the ligaments, which at the same time that it produces the prolapsus, also brought about a slight ptosis of the kidneys with a curve in the ureters, resulting in a consecutive hydronephrosis.

Whatever it may be, the compression of the ureters has been often sufficiently prolonged and serious enough to have caused uremia in some patients, and which was explained by the one fact of compression, as well as by a concomitant nephritis following the dilatation of the ureters.

According to Perré this dilatation

of the ureters and pelvis of the kidney is always present. The former are often abnormal from the beginning of the prolapsus, because they open in that part of the bladder which is just that one which is the first to enter into the formation of the hernia, and by their means, on account of the traction exercised on them, the kidneys are drawn down out of their normal situation.

As to the capacity of the bladder I desire to say a few words. The researches that have been made up to the present time have not given any very definite results. According to Perré and Barnes, the capacity of the bladder is always increased, while others, among whom I may mention Courty and de Sinety, believe that it is not changed, while some uphold that it is smaller than normal on account of atrophy of the organ.

In a case reported by Duplay and Chaput, in which an autopsy was made, the bladder contained one hundred and thirty grammes of urine. The same authorities found, out of twenty-eight cases, that eleven times the capacity was diminished and seventeen times increased; the increase of the vesical capacity often augmenting the prolapsus uteri.

These contradictory opinions in the evaluation of the bladder capacity are not to be wondered at when we recollect that "*the bladder has no anatomical capacity, but a physiological one*," as is most justly pointed out by Guyon, and consequently is as variable in women having a prolapsus as in those without it.

When the prolapsus is *complete* the vaginal wall hangs down between the thighs and soon becomes ulcerated. The ulcerations may extend to the bladder, and cases of perforation of this organ are reported. I would also mention the prolapsus of the mucous membrane of the urethra—in medical terms, urethrocele. This is formed by the dilatation of the urethra, while the bladder may remain intact, in which case a small sulcus is found between the anterior wall of the vagina and the urethra.

Cystocele and serious troubles in urinating due to prolapsus have often been reported, but there are cases in which they appear early and without cystitis, and Guyon insists on the fact that they are especially frequent in cases of *slight* prolapsus, giving rise to mistakes in diagnosis, especially so because the urinary troubles are not always in relation to the degree of the cystocele: a cystocele which is hardly apparent may sometimes give rise to very marked urinary troubles, as in the case I have shown you and two cases reported by Comar demonstrate.

Other than these infrequent cases a real cystocele is generally found in connection with a utero-vaginal prolapsus. Duplay and Chaput found it present in thirty-three out of thirty-seven cases of prolapsus.

Often the cystocele represents the first stage of the affection: at the same time as the vaginal invagination it precedes the falling of the womb instead of being a complication.

Usually the entire bladder does not

prolapse; it is first the lower wall that comes down. The organ is then the so-called hour-glass type: the upper part may not only extend above, but also behind the uterus, when this organ is sufficiently low down, while the remaining lower part of the bladder is drawn down by the vagina and descends, pulled in front of the cervix uteri by the upper wall. This lower pouch dilates and contributes to the increase of weight and inconvenience that these patients complain of in their pelvis, and you can readily understand that this dilatation may secondarily invade the ureters as I have already pointed out.

Cystocele is first noticed by frequent desire to pass water, the act being followed by painful sensations and vesical tenesmus. The patients will get into various positions to urinate and are sometimes obliged to directly press upon the hernia formed by the bladder in the vaginal canal in order to accomplish the act. Some writers consider these efforts and repeated irritations as the factors in the production of fungus growths and small polypi of the meatus, a typical example of which I showed the class last spring.

Cystitis of the fundus is produced by the stagnation of urine in the diverticuli of which I have spoken. The cystitis is accompanied by a thickening of the vesical walls and sometimes by fungus growths.

The symptoms are a frequent desire to urinate. The urine dribbles away over the parts bulging out of the orifice of the vagina when the

prolapsus is total, and is the cause of the ulcerations on the mucous membrane of the vagina so frequently seen. The urine is cloudy and filamentous, sometimes with a very bad smell, and the vesical mucous membrane becomes the seat of a purulent secretion.

These cases are infrequent, as cystitis is not a common complication of prolapsus, and according to certain writers it is only found accompanying calculi.

The urine in cystitis contains a large quantity of the phosphates (for some authorities phosphoric gravel is most frequently met with in the female), while the difficulty of micturition in prolapsus, and stagnation of the urine in the fundus, favors the formation of phosphatic deposits.

Uric acid calculi are also to be met with in prolapsus. These deposits are without doubt as frequent in the female as in the male, but usually in the former they are passed per urethram before they have a chance of becoming fixed in the bladder, while in prolapsus they remain in the diverticulum and give rise to the formation of calculi. Rayseh has reported several cases of calculi in the diverticuli of the bladder, and Varnier mentions thirty cases occurring in cystocele.

As you see, vesical calculi, although not frequent, are certainly not rare, and I particularly wished to bring this complication to your notice, for in so good and recent a treatise as *Keating and Coe*, no mention is even made of them.

You should also remember that in certain cases of genital prolapsus, a *general ptosis* is often found, which would lead you to suspect a *slow nutrition* of Bouchard, the phenomena of assimilation and desassimilation are no longer in full sway and uric acid gravel appears.

Pollakuria is frequent in prolapsus uteri. When the uterus has attained a certain degree of prolapsus all its weight is borne by the neck of the bladder, in which case the patients experience a continual desire to pass water, but which is not satisfied by the act, because the reflex cause still persists.

The patients repeat the effort again and again, and this continual straining finally results in a painful tenesmus so often seen in these cases.

This cause of pollakuria appears to be the true one if you will consider the characters that it has. Now the frequent necessity to micturate, which takes place when the patients stand or walk, disappears under the influence of repose and the horizontal position. To bring on the desire to empty the bladder in these patients, fatigue or jarring of a carriage is not necessary as in cases of stone: the simple upright position is alone sufficient, and the pollakuria usually disappears entirely when the patient lies down or even sits in a chair.

The pollakuria often becomes painful after a time, especially after vesical tenesmus is present, but the pain and frequent micturition may also be due to a passive congestion of the bladder, caused by the displacement

of the organ. Pollakuria may also be produced by uric acid gravel.

Dysuria is easily accounted for by the faulty position of the bladder and uterus. It may also be characterized by the efforts that the patient is obliged to make in order to expel the few drops of urine that come away. It is also characterized by pains, that the patients complain of at the meatus and urethra, and which are explained as burning, pricking, lancinating sensations, although the most careful examination fails to show any cystitis or even urethrocele.

Cystalgia is often met with in combination with dysuria, and is especially interesting from the fact that it constitutes one of these *early* forms of urinary troubles accompanying prolapsus uteri.

It is produced by a prolapsus which is often hardly visible and it may form the only diagnostic element: it appears with functional symptoms of cystitis, the bladder being void of any sign of inflammation and the urine free from any pathological change.

The pain first comes on in an indistinct fashion: then it increases in time, becomes exaggerated by the erect position, at first only being felt at the time of micturition, thus presenting the characters of frequency and pain that I have already described.

However, sometimes this cystalgia is not accompanied by pollakuria, and a most curious thing is that the pains, which are characteristic, may disappear during a time more or less long in spite of repeated fatigue, while in other cases they persist, no

matter what treatment you may employ, and if you do not obtain and make a most careful examination and by a careful and complete interrogation of your patients, nothing will put you on the track of the real cause of this cystalgia. This I have seen done time and again by experienced practitioners, as the following case will illustrate.

A young married lady of twenty-one consulted me for pollakuria and inflammatory symptoms of the bladder. These symptoms had been treated before her marriage, about one year ago, by a gynaecologist in this city, by instillations of nitrate of silver, boracic acid, irrigations, etc., all to no avail.

The family physician being consulted, immediately and without examination diagnosed cystitis, and the unfortunate young woman was filled with all the new fluid extracts, with supposed power for overcoming inflammation of the bladder, in which the pharmacopœ of the United States abounds.

All these preparations, excellent as they may possibly be, failed to give the patient any relief.

On examination I obtained a distinct history of a fall from a horse, some two years previously, with consecutive incomplete prolapsus of the uterus and anterior vaginal wall. The bladder symptoms were the only ones complained of by the patient. I performed an anterior colporrhaphy; the patient was out of bed in fifteen days and now enjoys life, all bladder symptoms having disappeared. The round ligaments

were massed and toned by the faradic current, three séances a week, and the uterus came back to a nearly normal position, which was complete by the aid of a well-fitting pessary.

Incontinence of urine in prolapsus is sometimes a false incontinence by overdistension occurring when the bladder is too full: or in other cases, when there is at the same time a pollakuria, you have to do with another type of false incontinence, the bladder being able to retain the urine, but its excitability is exaggerated by the continual irritation to which it is subjected, either by congestion kept up by the prolapsus, or by the direct contact of the tumor formed by the prolapsed organs.

Other patients, fewer in number, have a real incontinence, which is spontaneous and occurring only when the subject assumes the erect position; others have a desire to pass water and are obliged to satisfy it at once or the urine will escape. Laughing, coughing, sneezing, will cause an involuntary expulsion of urine. The continual dribbling away of the urine produces itching, excoriations and ulcerations of which I have spoken and in some cases finally leads to the formation of vesico-vaginal fistulæ.

The deviation and traction on the urethra may also be the cause of incontinence.

Retention may also occur in prolapsus uteri or in cases presenting an hypertrophic elongation of the cervix. Sometimes it takes place suddenly, as for example when the prolapsus appears all at once under the influence of an effort, the cervical

portion of the uterus hits against the symphysis pubis and is followed by an instantaneous retention of the urine. The retention in other cases may be preceded by symptoms of vesical irritation with frequent desire to micturate.

You will occasionally meet with a voluntary retention on account of the pain caused by the passage of the urine, or by its contact with the excoriated vaginal mucous membrane. But, gentlemen, these cases are not frequent, and when they do occur the consequences are numerous, such as calculi on their increase in volume when they preëxist, urinary deposits form, becoming the starting point of a cystitis; and lastly, the cystocele which already exists is increased in size by the retained urine and may be followed by dilatation of the ureters with all the usual sequelæ.

Remember that in these cases the passage of the catheter is difficult and the reservoir cannot always be emptied.

When a cystocele is not evident and the prolapsus is only slightly pronounced, you will often only make your diagnosis, based on the urinary troubles that are present, and in this point of view the pollakuria is the most important of them all.

You must, however, be careful not to attribute all cases of frequent micturition to a genital prolapse, for the pollakuria can be a symptom of hysteria, and it is evident that if you find stigmata of this neurosis in your patient or the symptoms of severe neurasthenia, this subject will certainly be entitled to a pollakuria.

Diabetes must not be forgotten and its other symptoms searched for.

The genital organs must be carefully examined for the slightest degree of prolapsus, and, if found, demands surgical treatment.

Pessaries are of little or no use when the prolapsus is marked; they may be the means of preventing its increase, but they in no way diminish the urinary complications.

For obstinate cystocele, cystopexy has been proposed and performed, fixing the bladder to the anterior abdominal wall, but this operation has not given, as might be expected, the results hoped for, and in my opinion, hysteropexy followed by an anterior colporrhaphy is the operation of choice in these cases. I also believe that shortening the round ligaments (Alexander's operation) is decidedly contra-indicated and is worse than useless in prolapsus uteri.

Hysteropexy and colporrhaphy are indicated in all cases of pronounced utero-vaginal prolapsus, but the question that is also to be considered is: Should an operation be performed for slight prolapsus?

I have pointed out to you that there may be serious urinary complications even in prolapse of slight degree; now these complications are of quite sufficient gravity for the operation, which is the only therapeutic measure that will be effectual.

Consequently in cases of slight prolapsus you should operate with the view of giving the bladder the support that it requires and which is obtained by a carefully performed colporrhaphy.

Two Cases of Congenital Atresia of the Hymen.*

DR. COROMILAS.

CASE I. In May, 1890, I was called by Mrs. V. to examine her little girl. As my attention was called to the external genital organs, I found an epidermic layer which closed the vaginal canal. A small incision was made in the middle of this membrane, which was nothing other than the hymen, as I was able to demonstrate.

CASE II. In April, 1894, I was asked to see a servant girl, aged seventeen, who complained of the following symptoms: pains in the pelvis, pollakuria, psychical troubles with loss of consciousness.

By simple palpation of the hypogastrium, quite severe pain was caused. Without going further in the examination I prescribed mercurial and belladonna ointment over the abdomen and diuretics, at the same time advising rest, and as diet, soup and milk.

On May 29, when again summoned, I learnt that the patient had never had her menses and that for over two years, every twenty-eight or twenty-nine days, she experienced very severe pains which lasted for five days. These pains disappeared spontaneously, but their intensity was increasing each month.

A more complete examination was then made, when a tumor above the pubis was found, which was the bladder distended by urine, as the patient had not passed her water for twenty hours.

The external genital organs were well formed, but I found between the labiae majore a smooth, fluctuating tumor, the size of a small orange. The patient had the bladder emptied by the catheter, the amount of urine being 400 grammes. After the urine had been withdrawn, the hypogastrium was found painful on pressure, especially on the left. An operation was proposed, but put off until June 4, for certain reasons, on which date the patient entered my private hospital.

Her face was pale, the tongue coated, pulse frequent, temperature $37^{\circ}.9$ C.; abdomen distended and the hypogastrium very painful. Nausea, but no vomiting. Bowels have not moved for five days. A puncture of the tumor projecting out between the labiae was made with a medium seized trocar and 250 grammes of dark blood was withdrawn.

I then slowly injected 80 grammes of a 4 per cent. solution of boracic acid; dressing consisted of fenestrated drain and carbolized absorbent cot-

*Read at the November meeting of the Societe Obstetricale et Gynecologique de Paris.

ton. The following was also prescribed :

R	Acid gallic.	1 gramme.
	Ergotin.	2.50 grammes.
	Aq. dest.	200 grammes.

M. D. S. A soup spoonful every half hour.

Compresses of camphorated vinegar were placed on the abdomen.

At one A. M. the carbolized cotton was changed, as it had become saturated with blood.

The following day the nurse told me that she had changed it six times since. The hypogastric region was much less painful.

After a vaginal injection with a boracic acid solution had been given, a crucial incision was made, and I could then introduce my small finger into the vagina and examine the cervix. This was found well developed.

Drainage and antiseptic dressings were applied. The membrane was nothing more than a very thickened hymen.

At noon, temperature 38° C. One gramme of tannate of quinine. The evening temperature was $38^{\circ}2$ C.; the dressings were saturated with blood. A vaginal irrigation was given until the solution returned clear.

The next day, temperature $37^{\circ}9$ C. pulse 100. Dressings less saturated; vaginal irrigation; ordered:

R	Phenacetin.	2 grammes.
	Pulv. opii.	12 centigrammes.
	Sodii bicarb.	3 grammes.

Met div. in chart, no. xii.

Take one powder every two hours.

From this time on apyrexia was complete. The hypogastric pains diminished and a vulvo-vaginal dilatation was practised daily.

On June 26 the menses appeared for the first time, and since this date the patient has been perfectly well, having her menstruation regularly every twenty-six or twenty-eight days.

REVIEW OF GYNÆCOLOGY.

EXTRA-UTERINE PREGNANCY; FOUR RECENT CASES. By DAVID BARROW, M.D.

[Continued from December number.]

A patient suspecting normal pregnancy, and giving unusual symptoms of any kind referable to the uterus or pelvis, should be carefully questioned and examined with a view of extra-uter-

ine pregnancy. If, with the symptoms of pregnancy, or without such symptoms for that, there be delay in menstruation of one or several weeks, followed by irregular bloody discharge, with or without decidua, and intense, spasmodic pain, lasting an hour or so and recurring every day or two; and if on examination we find a mass to one side or behind the uterus, and but little or no enlarge-

ment of that organ, we can feel reasonably sure of extra-uterine pregnancy. If, in addition, there is sterility of several years' duration, and a history of chronic pelvic disease, we can feel doubly sure of the diagnosis made. It is true that in exceptional cases there are but few or no symptoms, and when called, rupture having occurred, we find the condition extreme from the shock of peritoneal invasion and loss of blood. I believe and contend that more of these cases should be recognized before rupture, and if they were not put aside carelessly with the general opinion that they were cases of "threatened abortion," more accurate diagnosis would be made. The symptoms of tubo-ovarian disease will sometime closely stimulate extra-uterine pregnancy; in fact, so much alike may the two be that a positive opinion can not be formed. But this is the exception, and careful study and observation will enable us to distinguish one from the other. Because, we do meet with cases that are impossible to diagnose, there is no excuse for failing to recognize those with a reasonable number of diagnostic symptoms. Probably the first to attract attention is the cessation of menstruation; this alone does not indicate much. Then comes the irregular bleeding, and the characteristic, intense, spasmodic pain. A physician should never let a patient go along with irregular or continuous menstruation (or bleeding) without ascertaining the cause, if it be possible. Examine her once (if necessary, repeatedly) under an anæsthetic, and never cease the investigation until the cause is found. The pain caused by extra-uterine pregnancy is characteristic. It does not come often, at short intervals, as do the pains of abortion, nor is it the same kind of pain. Usually it is much more in-

tense, referred to one side of the pelvis, last often for an hour or two, and comes only once or twice during the twenty-four hours; it may be not so often. The patient will become pale and the face indicate great suffering, and she will beg for morphine or something to relieve her. In all of my cases the description of the pain was suggestive of the trouble existing. We must not forget that the decidua is sometimes thrown off in mass, and on careless examination a diagnosis of abortion is apt to be made. In some cases symptoms of pregnancy exist—nausea, indigestion, tender mammae, etc. This was true in only one of my cases. On digital examination we find a mass in Douglas' pouch or to one side of the uterus. Without an anæsthetic it is often impossible to make it out at all, as the patient contracts her muscles and resists on account of the pain attending bimanual manipulation. If the examination is made before there is much peritonitis, the mass (impregnated tube) is well defined, usually round, and not like the long, sausage-like mass that we often see in pus tubes. If there has been slight bleeding from a rupture or through the fibrinated extremity of the tube, we have a more or less active peritonitis. In this event the mass (impregnated tube, adherent intestine, and exuded blood) may fill a large part of the pelvic cavity, and sometimes can be felt above the pelvis brim. With the finger in the vagina it will be noted that the mass is elastic, tense, and fluctuating, and, if several examinations be made, rapid increase in size may be noticed. Should the hæmorrhage be so great that adhesions can not form, it will be difficult to make the diagnosis of free blood in the peritoneal cavity by bimanual manipulation. A hæmorrhage so active, however, will give decided evidence of its

existence, and the physician must realize as soon as he sees such a case that unless he acts promptly death will soon close the scene. Should the hæmorrhage be sub-peritoneal, from rupture into the folds of the broad ligament, the bleeding is limited. Such a case, I believe, I saw a few years ago recover without operation. In only one case have I been assisted in my diagnosis by the passage of decidua, and that was in one operated upon several years ago. The decidua was not detected in any of the cases reported in this paper. Should the patient not die from loss of blood at the time of rupture, she still has much danger ahead. The adhesions may give way and death result from a second or subsequent hæmorrhage, or the mass may become infected, suppuration follow, and the patient subjected to all the perils of a pelvic abscess. Even should she escape these, and the placenta and fetus continue to develop, any procedure then instituted is attended with much greater danger than if done previous to or soon after rupture. After there has been bleeding in the pelvic cavity there is more or less constant pain or discomfort, the bladder is often irritable, and the bowels hard to move. Should there be intra as well as extra-uterine pregnancy, the case is complicated and the diagnosis more difficult to make. This was the condition in my fourth case, and caused me to waver between extra-uterine pregnancy and pyosalpinx.

The treatment of extra-uterine pregnancy is surgical. Electricity, injections in the sac, etc., are advocated by some, and cases are cured by these means; but to me a prompt resort to surgery is the only treatment worthy of consideration, when the patient's consent can be gotten and the physician is prepared to do such surgery. These patients do well

after operation, if done early, and convalescence is usually rapid. Open the abdomen, separate the adhesions, deliver and tie off the impregnated tube and its ovary as quickly as possible. If there has been no leakage or rupture the operation is exceedingly simple, and may require neither irrigation nor drainage. After rupture the condition is more complicated, dependent upon the quantity of blood in the peritoneal cavity, the adhesions existing, and the strength of the patient. In the second case so weak and exsanguinated was the patient that she could not be completely anesthetized, and at no time was she insensible to pain. From the discoloration of the peritoneum rupture can usually be determined, if in doubt, before the cavity is opened: completing the incision, the fluid and clotted blood gushes out in surprising quantity. In all of my cases irrigation was large and thorough; but no matter how long continued, some blood and an occasional small clot would be washed out by the irrigating fluid. All of the cases were drained. When the loss of blood has been excessive the pulse will remain rapid and weak for several days, causing much anxiety to the surgeon. Three of the patients had weak and rapid pulses for some time, although doing well in other respects. My fourth case had a pulse of 150 during the second day, although she was bright and apparently doing well; in all the pulse remained over 100 for the first five days following the operation.

When possible, these patients should go to a hospital; there the surroundings are favorable, and the services of a trained nurse are almost indispensable. In an emergency I of course operate anywhere and do the best I can.—*The American Practitioner and News*, August 24, 1895.

ANTE AND POST-PARTUM HÆMORRHAGE. By A. D. PRICE, M. D.

The time has come when the accoucheur should, in his own behalf and the interest of the pregnant woman, demand that she be under his constant supervision from the earliest months of pregnancy to the completion of the lying-in. He can in no other way obtain the knowledge that will enable him often to avoid the many dangers that surround her, and to safely conduct her through the trials of labor, and to insure speedy restoration to health. The recognition of the patient's condition, the knowledge of difficulties that may be encountered, the ability to frequently avert danger and save life, and the importance of being always prepared for any and every emergency, teach us that this should be an imperative rule.

In opening the discussion on ante- and post-partum hæmorrhage I offer no apology for the following observations based upon my own experience and culled from the literature of the subject.

In placenta previa the placenta is inserted into the lower uterine segment: it never extends into the cervical canal, and the extent to which it overlaps the internal os measures its importance.

The varieties of previa are centralis, partialis, lateralis or marginalis—terms self-explanatory. Closely allied to this abnormal situation of the placenta is that condition in which it is inserted into the so-called danger zone, the lower uterine segment contiguous to that which undergoes dilatation, and which is often the cause of serious and dangerous hæmorrhages.

A case of this kind recently came under my observation during the temporary absence of her medical

attendant. She was a primipara, had had a number of hæmorrhages at intervals of a few weeks that ceased spontaneously on the patient being put to bed, but which finally led to premature labor and the explosion of a dead fœtus.

In previa the placenta is often abnormally adherent, and the core is frequently prolapsed, due to its marginal insertion, and when this latter condition exists the dangers to the viable fœtus are increased.

Fortunately this disease is of rare occurrence. While its cause is unknown, it has been noted to be more frequent in multiparae and in those who have borne children with great rapidity, and in pregnancies shortly following abortion, conditions favoring relaxation of the uterine walls, dilatation of the uterine cavity, and defective development of the decidua." It is claimed that straining, over-exertion, concussion from a misstep or fall, are no mean factors in forcing the ovum to the lower uterine segment, where it may become arrested, and the development of placenta previa will be the result.

Only about one-third of all cases reach the end of gestation, abortions and premature labor being frequent and due to accidental hæmorrhage. Abnormal positions, as breech and transverse, are favored by the relaxed condition of the uterine walls, and are not uncommon.

The pseudo-menstruation of pregnancy is generally indicative of placenta previa. The danger signal is the first hæmorrhage, which may occur at any period. When it takes place without assignable cause after the fourth month of utero-gestation placenta previa can be safely diagnosed. The most frequent period of the hæmorrhage is within "the six weeks preceding term;" it may, however, be delayed until the begin-

ning of labor, especially if the placenta is situated laterally.

The hæmorrhage generally occurs suddenly, without pain or warning of any kind. The amount is due to the extent of the placental separation: and, while it is apt to be slight at first, it is liable to become so profuse at any moment as to endanger the life of both mother and child, especially on the recurrence of the hæmorrhage.

When the loss of blood is excessive the symptoms of profound anæmia supervene: "Restlessness, headache, vertigo, short, interrupted, sighing respiration, small, weak, thready pulse, cold, clammy perspiration, convulsions, and death." *Post-partum* hæmorrhage and sepsis are liable to follow placenta previa, and their prevention demands the absolute cleanliness of attendants, patient, and surroundings, and the watchful and unremitting care of the physician until all danger has passed.

The prognosis is always grave, the danger being in proportion to the extent and situation of the placenta. The central insertion carries with it the greatest peril to both mother and child, and the marginal the least. "The earlier the hæmorrhage, the more profuse the flow, and the shorter the intervals between the attacks," the more serious the import.

Statistics teach us the great importance of the subject and impress upon those who do obstetrical work the necessity of formulating definite methods of procedure and having determination to carry them out promptly, boldly, and without bedside interference.

In any given case the question very naturally arises, can it be tided to term, and both mother and child be saved? If the insertion is marginal it may be accomplished, but it is a dangerous practice and should never

be attempted except in well-regulated hospitals where trained nurses and competent physicians are always at the bedside. The uncertainty, even after a thorough digital exploration, of the extent and situation of the placental insertion, and the progressive dangers to the mother and the imperiled vitality of the child after the first hæmorrhage, render such expectancy hazardous in the extreme, and call for its condemnation.

As soon as the diagnosis is made labor should be induced, and this should be done in the interest of the mother, her life being the first and only consideration. No time should be wasted and dangers invited by the use of the tampon. Proceed at once, under strict asepsis, to rapidly dilate the cervix and separate the placenta by sweeping the finger around the lower uterine segment as far as it will reach, or tear through its tissue if centrally implanted, or push it aside at the weakest point if laterally inserted, and deliver with forceps or by turning—the election being determined by each individual case. If the head presents favorably and the dilatation is sufficient, the forceps are indicated: if there is much rigidity it is safer to turn, bringing down a leg till the hæmorrhage is arrested by the pressure and leaving the rest to nature.

Barnes' dilators are dangerous: they are liable to be septic, to slip, burst, and disappoint in many ways, and their use is not recommended. Manual dilatation promptly and boldly employed, aided if necessary by the steel dilator, rarely fails. In these cases the cervix is generally dilatable, but occasionally it is rendered unyielding by its length, narrowness, and rigidity. When such a condition exists boldly divide the cervix bilaterally with scissors, complete the dilatation with the fingers, and de-

liver, suturing the incision after the delivery is completed.

In cases of collapse delivery should be slowly accomplished, and where an anæsthetic is required ether should be preferred to chloroform.

One of the most dangerous accidents which the obstetrician is liable to encounter is *concealed hæmorrhage*. Its sudden oncoming and rapid progress, its unheralded approach, its liability not to be recognized unless the attendant is ever on the alert and always looking for the unexpected to happen, with its great mortality (that of the mother being fifty per cent, and of the child ninety or more), invest the subject with special and peculiar interest.

This form of hæmorrhage is due to the separation of the normally situated placenta from its uterine attachment, the extent of the detachment measuring its amount and indicating its relative seriousness.

Goodell gives the following conditions in which the concealed hæmorrhage may take place: "When the placenta is centrally detached and the blood accumulates in the cul-de-sac formed by the firm adhesions of its margins to the uterine wall; when the placenta is so detached that the blood escapes into the uterine cavity behind the membranes near the fundus; when the membranes are ruptured near the detached placenta and the effused blood mingles with the liquor amnii; when the presenting part of the fœtus so accurately plugs up the natural outlet that no existing hæmorrhage can escape externally."

Feeble, anemic, and albuminuric women are liable to this accident, and those who have borne a number of children are especially so during the latter months of pregnancy. Its causes, as enumerated, are irregular or partial uterine contractions, ex-

ternal violence, undue exertions, and emotional excitement.

The first symptom is generally collapse from hæmorrhage. This condition is marked by the usual indications of shock, and rendered quite certain by weak, intermittent, uterine contractions, by a lateral bulging of the uterine wall from the effused blood, and by great pain from over distension.

The prompt and speedy emptying of the uterus is demanded on its first recognition. The mother's life (that of the child is not considered) hangs by a thread, and her only safety lies in rapid manual dilatation and quick delivery with the forceps or by turning, which should be preceded by a hypodermic injection of ergot and aided by external compression. Prompt delivery, never expectancy, should be the rule.

I have endeavored to portray the importance of the hæmorrhages that antedate the completion of labor; and there remains to be considered those of no less import that follow. There is no other class of patients in which emergencies occur so suddenly and which demand such prompt measures of relief as those that come under the obstetrician's care. We should have fixed principles of conduct for every accident liable to be encountered and, banishing every doubt, all hesitation, boldly employ them for the saving of life.

Post-partum hæmorrhage follows the birth of the child, and the loss of blood is from the placental site, or from torn or lacerated vessels of vagina or cervix, or from a ruptured uterus.

There is a form of hæmorrhage, the *secondary*, that demands brief notice. It may occur any time during the puerperium, and is due to simple relaxation of the uterus, emotional causes, retained coagula, or the

presence of a polypus. It is combated by emptying the uterus and securing and maintaining its firm contraction.

When the hæmorrhage is due to laceration the uterus is well contracted and the flow of blood is not profuse unless the circular artery be torn. The diagnosis is made certain by ocular inspection. The ligation of the torn vessels is required at once: the proper position of the patient being on her back, the perineum retracted, and the uterus well drawn down with a strong tenaculum.

In true *post-partum* hæmorrhage the uterus is relaxed and often undefinable; the flow may be slight or excessive to an alarming degree: it is sometimes concealed, and again its only manifestation is a constant oozing. In this last condition chronic endometritis is liable to exist. A depraved condition of the blood, deficient muscular development of the uterus, and lowered muscular irritability favor diminished contraction and retraction, and consequently hæmorrhage. Prolonged and exhausting labor, too rapid evacuation of the uterus, its overdistension, endometritis, nervous shock, excitement even after labor, anesthesia carried to excess, peritoneal adhesions, tumors in the walls of uterus or adnexa, retained portions of placenta, membranes or clots, dilated and degenerated atheromatous blood-vessels of the uterus, or any thing that "disturbs the mechanism by which the hæmorrhage is normally prevented," are enumerated as among the causes of this accident.

It should never be forgotten that hydatidiform mole and placenta prævia predispose to *post-partum* hæmorrhage, and being forewarned is being forearmed. "Haste makes waste" in many things, particularly in labor, which should never be rapidly com-

pleted unless there is some special cause demanding it. Give the uterus, after the head is born, ample time to retract, is a safe rule by which to be guided.

A proper knowledge of the mechanism by which hæmorrhage is arrested is essential to the correct management of the third and most important stage of labor. The spontaneous retraction of the arterial twigs: the plugging of the mouths of the sinuses with fibrinous clots favored by the increased amount of fibrin in the blood of the pregnant woman: the flattening, bending, and closing the venous sinuses by muscular contraction: the lowering of arterial tension, the quieting of the nervous system, and the tonic retraction of the uterus are the methods, we are taught, by which hæmorrhage from the placental site is normally prevented.

The third stage of labor requires the most careful management. Hasty delivery of the placenta, as a rule, means great danger: "too early effort in this direction exhausts the uterine muscles and favors relaxation." Give the uterus thirty minutes or more in which to separate the placenta and protect its site by a thin and firm clot: keep the hand over the uterus that its condition may be known and its contraction maintained, when necessary, by quick, gentle friction, and express the placenta at the proper time by Crede's method, are rules by which the attendant should be guided in every case of labor.

Those who have witnessed a case of severe *post-partum* hæmorrhage can appreciate its prevention. Prophylaxis can accomplish much and render these cases exceedingly rare. The patient should be carefully prepared for her confinement by herself and surroundings being made aseptic and by having her rectum and bladder

thoroughly emptied, something too often overlooked. The physician should be prepared to battle for life at the first danger signal by having at hand a fountain and hypodermic syringe, ergot, hot water, some antiseptic, ice, tincture of iodine, spirits of turpentine, acetic acid, solution of sub-sulphate of iron, iodoform gauze, a faradic battery, and a bed-pan.

In habitual bleeders, and in those weakened and exhausted and poorly fitted for the trials of labor, strychnine will stay the flagging powers and often tide them over threatened danger. Prolonged labor exhausts the uterine muscles and favors hæmorrhage through relaxation, hence the proper use of the forceps is a prophylactic measure of great importance. Chloroform should never be withheld from the parturient woman unless there is some special reason for doing so. It subdues pain, relieves mental distress, quiets the nervous system, and when properly administered favors better action of the uterus and more efficient contractions after labor."

When hæmorrhage occurs empty the uterus promptly, induce contraction and maintain retraction. Carry the hand within the uterus and remove placenta membrane, and clots, kneading gently while the fundus is compressed externally with the other hand.

The bimanual method is very effective in controlling the hæmorrhage. Anteflex the uterus, make pressure on the posterior surface with one hand, and with the other closed in the vagina exert counter-pressure, and thus force the walls together, staying the flow till coagulation takes place.

The next step, should the hæmorrhage continue, is quick, gentle friction with ice over the abdomen, followed, if necessary, by its introduc-

tion within the cervix or into the uterine cavity. The use of ice within the uterus should be cautiously employed, as it is apt to increase the shock, lower the temperature, favor the development of endometritis, and increase the liability to sepsis.

Compression of the aorta has only a temporary effect, simply giving time for the employment of more efficient measures. And of these the following are noted and the order in which they should probably be used: Intra-uterine applications of hot sterilized water with or without antiseptics (bichloride, boric acid, or creolin) of tincture of iodine or acetic acid 1-4, or, better still, of gauze saturated with spirits of turpentine; this latter is promptly effective and free of danger. The injection of Monsel's solution, 1-12, is effective, but always dangerous, and should never be used except as a last resort. In one desperate case that resisted the measures as detailed, and death was imminent, it promptly checked the hæmorrhage and had no unpleasant effects. In another, in which I had occasion to use it, the flow was quickly stopped, but the death of the patient, a consumptive, was hastened by its bad results.

Iodoform gauze as an intra-uterine tampon is efficient and safe, and should perhaps have precedence to intra-uterine injections; it should be removed within twenty-four hours and followed by a vaginal douche.

The faradic battery, one pole being applied to the lumbar region and the other over the uterus or within its cavity, rarely fails to produce prompt and efficient contractions, and should always have a place in the obstetrician's armamentarium.

Ergot does not deserve the good effects usually ascribed to it in these cases. It should never be administered by the stomach, as its action is

nil from lack or slowness of absorption, but given when indicated hypodermatically, remembering that an abscess is liable to follow.

The patient's general condition will require attention. If the loss of blood has been great and the shock is severe, lower the head, elevate the limbs, apply heat to back of neck and head, and give rectal injection of whisky and hot coffee. If the depression is very great, hypodermics of whisky, ether or strychnine will be demanded. The inhalation of oxygen and the hypodermatic use of morphine and atropia will be called for in those cases where there is "great restlessness and cerebral depression."

The injections of the common salt solution into the rectum or intra-muscular are useful in all cases where the loss of blood has been great and the depression severe.

The after-treatment consists of rest, quiet, stimulants and nourishing food.

Go to the bedside with well-defined methods of treatment and with the necessary preparation to carry them out promptly and efficiently, and you will learn to say that a case of *post-partum* hemorrhage should never be unsuccessfully managed.—*The American Practitioner and News*, Aug. 21, 1895.

THE RADICAL CURE OF UTERINE PROLAPSE. By FRED. EDGE, F.R.C.S.

WITHOUT expending too much time on preliminary matters, I will briefly attempt to recall a few points concerning prolapsus of the uterus.

In the first place it is of primary importance that the term should be used as the equivalent of "sacro-pubic hernia" (Hart and Barbour). The factors producing prolapsus uteri are mainly as follows: (1) Deficient support of the entire fixed portion of

the pelvic floor. This chiefly comprehends laceration of the perineum, and loss of their fixed point by the perineal muscles, and laceration or overstretching of the levator ani muscles. (2) Deficient tone of entire displaceable segment of pelvic floor, and slackening of loose tissue round it. This includes the bladder, urethra and vaginal walls. (3) Intra-abdominal pressure.

The conditions found in a case of advanced prolapse are given as: *primary*—(1) perineal body usually torn and perineal union of levatores ani, transverse perinei, and bulbo-cavernosi torn to a greater or less extent; (2) increase of intra-abdominal pressure; *secondary*—(3) congestion with areolar hyperplasia of uterus, pubic segment and posterior vaginal wall, laxity of everted vagina; (4) separation of anterior rectal and posterior vaginal walls, and of vagina and bladder from their lateral relations, with peritoneum clothing the separated surfaces. These secondary lesions, especially the last, are serious and incurable according to Hart and Barbour.

In order to restore the pelvic floor to its pristine state it is necessary: (1) to repair the perineal body and narrow the vagina; (2) to restrain increased abdominal pressure: these are said to be possible; (3) to do away with congestion and areolar hyperplasia is probably beyond our powers; while (4) to bring about adhesion of the anterior rectal and posterior vaginal walls, and to restore the lateral supports, is impossible according to these authors.

Now, the methods of surgical treatment in vogue (1 and omitting tonic treatment, pessaries, massage, percussion, electrical treatment) are: (1) forming an inferior point of support from the vaginal wall, the vulva, or the perineum; (2) raising the uterus

by shortening of the round ligaments: (3) suture of the uterus to adjacent parts (hysteropexy) by the vagina, or by laparotomy: (4) hysterectomy.

The adjuvant operations are: (1) curetting; (2) amputation of the cervix; (3) removal of a wedge from the uterine wall generally anteriorly.

These headings give some of the leading points in uterine prolapse and its treatment, and as they are taken from Hart and Barbour, Pozzi, Winckel and Dührssen, they may fairly be considered to reflect modern gynæcological opinion. The great difference in treatment lies in the preliminary use of Thure Brandt's methods, more extensively employed on the Continent than here, as we find on referring to Winckel and Dührssen's books.

My object in writing this short paper is not so much to point out any new operation, as to draw attention to a combination of operations which, with other steps for restoring tonicity of the parts, and decreasing the abdominal pressure, constitutes as real a radical cure of sacro-pubic hernia as the so-called radical cures of any other hernia. It seems to me that I can do this best by discussing the table drawn up by Hart and Barbour.

As they point out, in a case of advanced prolapsus uteri we generally find the perineal body torn, and the perineal union of the levatores ani, transverse perinei and bulbo-cavernosi torn to a greater or less extent. The vagina is also dilated. These conditions can be remedied by repair of the perineal body and narrowing of the vagina (clatrorrhaphy).

Without detracting from the importance of the perineal body, it is well to remember that in the third stage of laceration prolapsus uteri is very rare, since the rectum empties

itself without straining, and this fact suggests that the main cause of prolapse is due to the want of support of the anterior rectal wall, and the consequent increased abdominal pressure required to evacuate the bowel. It also explains the usefulness of the old ball pessary, which gave a *point d'appui* to the rectal wall. To increase the intra-abdominal pressure the essential points are attention to diet, and the use of aperients, with great solicitude for regular evacuation of the rectum without straining. It has occurred to me that massage of the uterus may owe much of its result to the attention given previously to the rectum, and to the improved intestinal tone. General muscular exercise does good by increasing the muscle tone, and especially by favoring a better carriage and inclination of the pelvis, whereby the pelvic floor has less weight superimposed upon it, and this throws more on the pubic arch and Poupart's ligaments and other fasciæ and muscles. The use of a belt is recommended, both because it supports these parts, and also for the feeling of security and ease it gives, thus aiding a better carriage of the trunk.

To say that it is probably beyond our powers to do away with congestion and areolar hyperplasia of uterus, pubic segment of pelvic floor, and of the posterior vaginal wall, is, perhaps, correct as a rule, but only so because in practice the necessary time and trouble are not given to attain these objects. Curetting and amputation of the cervix assist these aims, but a correct position of the uterus and a normal direction of its vessels and ligaments carrying the lymphatics will do much to enable natural recovery from these conditions.

Hart and Barbour's last conclusion is, however, most to be combated. They say that it is impossible to

bring about adhesion of the anterior rectal and posterior vaginal walls, and to restore the lateral supports. "Prolapsus uteri is, therefore, a condition with serious and irremediable secondary results." The use which a certain part of the profession will make of this is evident, and I consider that it has much to do with the apathy displayed in treatment of uterine prolapse, almost as much, perhaps, as the use of perineal operations alone to effect a cure.

It is well when we are told that we cannot do a certain thing, before making efforts to circumvent the impossibility, to ask ourselves whether it would avail us anything if we could do it. I think we are justified in neglecting the adhesion of the posterior vaginal to the anterior rectal wall, because there is no proof of its being of any but the least importance in supporting the herniated structures.* When it refers to the impossibility of restoring the lateral adhesions it is overstating the case, and by using the words in their surgical sense rather than absolutely, one can speak truthfully of restoring the lateral support of the uterus.

This can be done by Westermarek's operation of double lateral kolporrhaphy. It is only necessary to go into the cellular tissue somewhat deeply at the lateral fornices to gain practically complete restoration of the lateral support of the uterus. Pozzi points out that the superior ligaments (peritoneal and round) serve more for maintaining the position of the uterus than for its support, but at the same time it must be evident that by keeping up the normal position of the

uterus they afford the uterus much protection and support, by placing it in the most favorable state for receiving pressure from the abdomen, and by preventing the uterus from obstructing the rectum and thus causing great increases of abdominal pressure during the expulsive efforts of defecation.

For the renewal of the action of these ligaments we have no direct means, but by vaginal fixation of the fundus and the subsequent improvement in the muscle tone of the pelvic viscera we obtain practically a complete renewal of their action. The great support required by this operation is that of the pelvic fasciæ in those parts where it runs directly into strong bony insertions and thus offers a complete support by short, dense, fibrous tissue with a perfect basis of attachment.

Dührssen has combined his method of vaginal fixation with anterior kolporrhaphy and perineorrhaphy with success, but it seems more rational to use double lateral kolporrhaphy involving the cervix combined with vaginal fixation and perineorrhaphy.

Having thus briefly and irregularly expressed some of the grounds upon which my selection of method is based, I will give a short account of the procedure:—

The patient must be prepared as for a major operation. She must take an aperient two days before the operation, and again the night before if necessary. The vulva and genital canal should be well douched, the prolapsed parts scrubbed with 1 per cent. lysol solution thrice a day, and a plug soaked in lysol solution left in the vagina during the night. On the eve of the operation she has a large simple enema, and this is repeated in the morning one hour before the operation. After the last enema has acted the patient must take a warm

*How little support the uterus gets from its anterior and posterior surfaces may be well seen in a sagittal section of the pelvic cavity. This is given on p. 35 of Hart and Burbour, fig. 33 (from Braune). It is seen that below the anterior and posterior peritoneal folds there is a prolongation of very loose extra-peritoneal tissue, which practically renders any anterior or posterior support of the uterus impossible.

bath, soaping herself well, and then put on clean linen. The bed clothes are also changed during the bath. On the operation morning the patient must take nothing beyond a cup of weak tea. The patient must accustom herself to pass her water while lying, so that the catheter may not be required after operation.

The patient being placed in the lithotomy position and fixed with Clover's crutch, the operator sits on a stool as for perineal operations. He then performs the combination of operations in the following order: Curetting the uterus and washing it out; re-disinfection of operator and assistants and douching of the vagina and vulva; vaginal fixation carried as far as insertion of the sutures; double lateral kolporrhaphy as far as insertion of the sutures; tying of sutures of kolporrhaphy; tying of vaginal fixation sutures; Lawson Tait's perineorrhaphy.

Mr. J. W. Taylor has found double lateral kolporrhaphy to be very successful in most cases of prolapse. I have performed it in three cases with every satisfaction to the patient and myself. But the operation cannot bring about the normal condition of anteflexed version of the uterine body, and hence the fundus must still press on the rectum and the pelvic veins, producing straining at stool, and keeping up the congestion and areolar hyperplasia of the uterus. Vaginal fixation puts the fundus practically in its normal position and at the same time cures the cystocele, almost always present, by the dragging of the fundus upon the anterior vaginal wall. If the perineorrhaphy be superadded, and the perineum be carried well forward, the radical cure seems secured, since the preliminary descent of the anterior vaginal wall, in case this again tends to become lax, is prohibited.

The sutures used are of finest silk for the lateral kolporrhaphy, and are passed continuously; these remain, or if left long may be gradually withdrawn. Silk-worm gut sutures are used for the vaginal fixation and the perineorrhaphy. The latter are removed after a month, and the fixation sutures after six or eight weeks, when the perineum will allow of a small-bladed Sim's speculum being used. This combination of operations involves a considerable expenditure of time, but with practice the duration would be greatly reduced. The operation is also without shock, and in the first two divisions does not require deep anaesthesia. If it entirely fails, the patient is in the same condition in which she was previously to the operation—only a little vaginal mucous membrane has been removed. If it succeeds, the patient becomes a perfect woman, and the operation deserves to obtain recognition as the conservative cure of uterine prolapse. —*British Gynaecological Journal*, 1895.

VENTROFIXATION AND ALEXANDER'S OPERATION COMPARED. By A. LAPHORN SMITH, M.D.

Comparatively limited as my experience has been with these two operations, yet it might be of interest to the society to give that experience and the conclusions which I have drawn from having performed one or the other of them forty-nine times.

I need not take up the time of such learned men as these around me in pointing out the necessity for this or any operation for the cure of retroversion. When I say that I have only performed the Alexander operation twenty-one times and ventrofixation twenty-eight times in the last five years, while during that time I must have attended many hundred

cases of this disease, it is evident that I only considered a small number of them as being subjects for operative treatment. Many cases have come before my notice in which the retroversion was discovered incidentally and caused no symptoms whatever. Others, suffering from slight symptoms, were easily cured, simply by replacing the displaced organ and by removing the cause which brought the conditions about. Others, again, failed to be cured by such simple measures and required the prolonged use of the tampon, and others of the pessary. It was only in those cases which were not benefited by these means that I resorted to the operation. If there are those that doubt the necessity of treating this condition at all, as I believe there are a few, let me remind them that a woman with retroversion sometimes suffers so acutely and constantly as to be really an object of pity. Not only is the circulation of the uterus greatly interfered with by the kinking of the vessels in the broad ligaments and by the pressure of the fundus on the uterine veins, but also the bladder is frequently irritated by the pressure of the cervix on its neck, and the bowel also by the pressure of the heavy fundus on the rectum, which is in some cases sufficient to completely obstruct all passage through the bowel, the patient constantly experiencing a feeling of tenesmus or bearing down, the obstacle to defecation being present even when the bowels are in a liquid condition. But the worse symptoms, perhaps, are the reflex ones caused by the pressure of the uterus on the branches of the great sympathetic nerve, leading to distention and sluggishness of the bowels, dyspepsia, palpitation of the heart, disorders of vision, and headaches. Neither must we forget that the retroverted uterus and ovaries are often

so painful as to offer an insurmountable barrier to sexual intercourse.

Of the many claims to our gratitude which Dr. Howard Kelly has won I think this the greatest, for of all the operations which I have ever performed the one which has afforded me the greatest satisfaction is ventrofixation of the uterus. The satisfaction comes from three distinct sources: first, from its effectiveness in accomplishing the object desired; second, in accomplishing it with the smallest possible risk to the patient; and, third, in effecting it with the greatest possible ease to the operator.

I shall now consider each of these points in detail. First, its efficiency. When a woman consults us for retroversion of the uterus, for prolapse, or even for procidentia—using this term to mean falling of the womb in which the organ projects more or less from the vulva—we may treat her in several different ways. We may advise her to wear a tight T or perineal bandage: this of course is the poorest kind of a makeshift and one which few women would be content with. We may replace it and keep it up by means of cotton or woollen pads, which are, however, very unsatisfactory, for the reason that the vulva in many cases is large and relaxed: the tampon will only remain in for a short time, dropping out either while she is walking or at the next effort at defecation. Even if the tampon, when accompanied by the perineal pad which keeps the tampon in, were effective, there would still be the great objection that its use necessitates the spending of much of the unhappy woman's time in journeying to and fro to the dispensary or consulting room. This method never cures, and the patient sooner or later becomes tired of it and abandons it altogether. The next best treatment is the pessary: but this has been

abandoned by most specialists, although practised still by some general practitioners. The pessary has many objections. First of all, if the ovaries and tubes are inflamed and bound down by adhesions, the pessary cannot be borne, and as a rule the patient returns in a few hours or in a few days, stating that she cannot bear the pain of it, and she will with good reason blame us for making her worse. Second, even if there were no inflammation or adhesions and the uterus and appendages were freely movable, the vaginal outlet, as a rule, is too large to prevent the pessary from coming out, or, if not already so, the pressure exercised by the pessary will distend it until it drops out, and then larger and larger ones must be introduced. Even when the vulva is small, as in virgins, and the pessary can be worn by the patient, she must come at regular intervals to the physician's office to have it cleansed and reintroduced: it is more or less a constant source of irritation and is apt to cause leucorrhœa, which in many cases I have seen become purulent; in other cases it becomes encrusted with phosphatic deposits, rendering it exceedingly irritating: cases are even on record in which the pessary, when not regularly attended to, has ulcerated through the vaginal wall until malignant disease has been set up, and in other cases it has worked its way clear through the vagina to the abdominal cavity, whence it has been removed by abdominal section. Third, the pessary interferes more or less with sexual intercourse, while most women feel uncomfortable at the very idea of having an instrument inside of them and are always glad to dispense with it as soon as possible. To give the pessary its due, however, we must admit that a few cases of retroversion and prolapse are cured after three

months' to a year's use of it, but in the meantime, of course, the uterus comes down again when the pessary is removed. It is most useful in temporary cases, such as when the womb falls, because it has become pregnant and heavy; in such cases the pessary is useful to hold the womb up until the end of the third month, after which by its size it will be prevented from falling backward or descending. One of the objections to the pessary can be remedied by reducing the size of the vaginal outlet by performing anterior and posterior colporrhaphy, or, in other words, sewing up the lacerated perinæum and reducing the area of the anterior vaginal wall by means of Stoltz's operation. Some have thought to cure the prolapse by this operation alone, but now all operators agree, especially Martin of Berlin, that, no matter how much the vagina may be narrowed, even to the extent of closing it up altogether, as by Lefort's operation—which, of course, is only applicable to old widows—the uterus will still come down and present at the vulva. By at the same time dilating, curetting, and repairing a lacerated cervix, or amputating it if there is much cystic disease, the weight of the organ is reduced so much that the weak and relaxed ligaments are sometimes able to hold it up, but more often it drops again in spite of everything.

There remain three other procedures which are effective and which I shall mention in the order of their gravity: First, removal of the uterus by the abdomen or by the vagina; second, Alexander's operation; and, third, ventrofixation.

Although the removal of the retroverted or prolapsed uterus by the vagina is a much safer operation than when it is performed for a cancer or fibroids, owing to the facility with

which it may be brought down and all bleeding points seen and secured, and also to the greater certainty of accomplishing asepsis, yet we are hardly justified in resorting to it or to any operation in which the danger is so much greater than is the simple fastening of the uterus to the abdominal wall; while, when the appendages are diseased and the uterus is firmly attached with them to the sacrum or rectum, I have no hesitation in saying that the abdominal route is much more rational than the vaginal one. Even the authors of the latter method — Ségond, Richelot, and Péan—admit that they are frequently obliged to leave portions of the diseased structures adherent to the intestines. But even when there are no adhesions, is removal of the uterus and appendages always effective for curing prolapse of the pelvic contents? True, the uterus when removed can no longer prolapse, but the uterus is not the only organ there; even after its removal the woman may have prolapse of the pelvic floor, unless care is taken to sew the broad ligaments together, which is seldom done, although for my own part I make a practice of doing so when I remove the entire uterus by the vagina. But with ventrofixation not only is the entire uterus preserved and held up, but also the bladder, vagina, and small intestines are equally supported.

When we compare ventrofixation with Alexander's operation as regards efficiency, ventrofixation has one great advantage. Alexander's operation is a complete failure in all cases in which the uterus, or even the ovaries and tubes, are adherent. True, Alexander's operations were never meant for such cases, and no one would knowingly do it when the uterus is fixed. But sometimes the uterus appears movable and yet the

mobility is very limited, and when we attempt to draw the fundus up to the abdominal wall by means of the round ligaments, the latter will break sooner than the adhesions will. These adhesions which anchor the uterus explain some of the frequent failures of Alexander's operation; when there were no adhesions I have found Alexander's operation very effective in holding up the uterus. I have never had hernia after it, and I have only known of one relapse out of twenty-one cases.

One objection to Alexander's operation is that the round muscles, when they have not contracted for a long time, become fatty and break when pulled upon. There is another objection to Alexander's operation which does not apply to ventrofixation, and that is the pain and numbness of the groins and labia due to the severing of the nerve running along the round ligaments, of which several of my patients have complained.

Now, if we look at the operations of ventrofixation and Alexander's from the standpoint of the risk to the patient, one might think at first sight that in this respect, at least, the odds were in favor of Alexander's operation. But this is not the case. If there are no adhesions of the uterus, and the ovaries and tubes are not attached, the mere opening of the abdomen and fixation of the uterus under the rigorous aseptic precautions which we now employ is absolutely devoid of danger; while if there are adhesions it is ever so much safer to detach them with the fingers in the abdomen than to replace the uterus with the sound. At least one case has come to my knowledge of death from this procedure. Neither is Alexander's operation entirely devoid of risk, if not to the patient's life, at least to her comfort. A number of cases have come to my knowl-

edge in which single or double inguinal hernia has followed. This, of course, should never happen, but the fact remains that it has happened: and a great many cases have been followed by suppuration, this having occurred in one of my own cases, while in a case under the care of a colleague the suppuration spread down between the folds of the broad ligaments, causing a true pelvic abscess. A few cases of death even have been recorded as having followed Alexander's operation: but it is only fair to say that since writing this paper I have heard of a case of death in Baltimore following ventrofixation from bleeding from the needleholes into the uterus, although I cannot understand how that accident could have happened. It must be distinctly understood that when ventrofixation is performed for removal of pus tubes or tearing away of adherent ovaries, it then assumes the mortality of the larger operation, which is greater or less according to who the operator is.

When we compare the operation from the point of view of the ease with which it can be performed, Alexander's operation is *hors de combat*. I was so fortunate at first in quickly finding the round ligaments and drawing them out that I could hardly believe that any skilled operator could have any difficulty in doing so: but after coming across two or three cases in succession in which the ligament broke on the slightest traction, I was compelled to open the abdomen and complete the Alexander operation by doing ventrofixation. I have also spent as much as one hour in finding the two ligaments, and I have seen other operators spend even more time and yet fail to get the uterus forward, the incision having to be closed without curing the retroversion. I have, indeed, heard one quite well-known surgeon say, after search-

ing for the ligaments for one hour and a half in vain, that he had tried it for the last time.

If the uterus were always free from adhesions when it appears so, and the round muscles always healthy, red, fleshy, and fairly strong bodies, there would be no difficulty in finding them and drawing them out. But, as a rule, in chronic cases of retroversion the muscle has not contracted for weeks, months, or years: the inevitable result is, of course, fatty degeneration. Ventrofixation, on the contrary, I have always found extremely easy. It can frequently be performed in from ten to fifteen minutes with an expenditure of less than an ounce of A. C. E. mixture. There is never any doubt about finding the uterus, and, when found, never any difficulty about drawing it up; when performed in the Trendelenburg posture it affords us an opportunity of examining the tubes and ovaries and of repairing them when necessary.

I cannot reconcile myself to the belief that so serious a mutilation as total extirpation for retroversion or prolapse is justifiable when such serious results may be avoided by the operation which I have just pointed out. My own course has been, when the case requires it, to perform, first, rapid dilatation; second, curetting, with the application of pure carbolic acid and tincture of iodine to every part of the endometrium; third, repair of the lacerated cervix; fourth, closure or narrowing of the anterior and posterior vaginal wall; fifth, opening the abdomen and liberating the uterus from its adhesion, and at the same time removing the appendages or as much of them as are diseased; and, sixth, fastening the uterus to the abdominal wall—all of which can be done in a little over an hour. My results in such cases, as

I stated at the outset, have been most gratifying.

The objection is sometimes made that the uterus is a movable organ and should not be fixed in an immovable position. While this may be admitted, I am in a position to state that ventrofixation does not put the uterus in an immovable position, for in the one and only case of failure, which a year later necessitated my reopening the abdomen, I had an opportunity to see that the uterus was hanging by a cord as thick as a lead pencil, extending exactly from the place where I had fastened it behind the pubis to the anterior surface of the uterus. In many cases, on examining the patient with the Sims speculum, I could see the normal amount of to-and-fro movement of the organ taking place. The union allows free movement to the uterus and in no way interferes with pregnancy.

Just a few words now as to the method of operating. After the usual aseptic precautions a small opening is made in the abdomen about one and a half or two inches being sufficient to admit two fingers, with which the uterus is lifted up, the adhesions torn away, if there are any, and the ovaries and tubes examined. While held up by the fingers the fundus is caught by the bullet forceps just in the centre and held in the incision, while a space of a square inch is scarified with the point of the scalpel. It is then lowered for a moment while the corresponding surface of the abdominal peritoneum is treated in the same manner, thus insuring broad and strong adhering surfaces. It is then drawn up again, while two well-sterilized silk ligatures are passed through the fascia, then through the anterior wall of the uterus, and then through the fascia of the other side, tied and cut short, to be left in permanently.

In two cases I used silkworm gut for this purpose, but this caused trouble and I abandoned it; in more than half the cases I did not leave any permanent ligatures in, and it was in one of these that the failure occurred. The abdominal wall is then closed according to the taste of the operator, my preference being given to the through-and-through silkworm gut sutures, which I invariably leave in one month, by which time the exudation tissue has formed and has become thoroughly organized and strong. — *American Journal of Obstetrics*, No. 2, 1895.

CLINICAL LECTURE. By E. E. MONTGOMERY, M.D.

GENTLEMEN: — One week ago I operated before you for a cyst of the vulva. We at that time discussed the various conditions, such as vulvo-vaginal thrombus, abscess, labial hernia and hydrocele, with which this might be confounded. We demonstrated by its localized condition that it could not be hernia or hydrocele; by the absence of inflammatory symptoms, that it was not abscess; by the absence of any history of injury or recent labor that it could not be a thrombus; hence we were forced to the conclusion that we had to deal with a vulvo-vaginal cyst, due to obliteration of the duct of Bartholin's gland, leading to retention within the cyst of its secretion. The treatment, I told you, consisted in the entire removal of the structure; that mere opening the cyst and emptying its contents would not suffice, as even if we are able to obliterate the cyst which had given rise to the trouble at the present time, other lobules would lead to the development of subsequent cysts. Finding that this cyst did not involve the entire stricture, we dissected out the gland. The opening,

which was quite extensive, was closed by sutures passed in such a way as to obliterate the cavity. I bring her before you today for the removal of these sutures and to show you the result. The parts have contracted, the incision was made within the labium, and there is no sign of any deformity or malformation resulting from the operation.

Coccygodynia. Removal of the Coccyx.—The second patient you also saw one week ago. She presents the following history: She is thirty-three years of age, married, father and mother living, and in good health. She has three sisters and a brother, all of whom are living and well. She had the common diseases of childhood, small-pox at eleven, rheumatism, pneumonia, and grippe. Menstruated at nine, was regular until twelve, when she says the flow stopped for two years. After this period she was regular. She was married at eighteen, and has had seven children: the youngest is six years old. Instruments were used during the first labor, when she was badly lacerated, also during the last. She has had one miscarriage. Twelve years ago while working, she slipped and struck the coccyx against the corner of a lounge, which caused a fracture. This united without treatment, but projected somewhat more forward. She had a subsequent injury some two years ago, since which she has suffered much distress. The history of this patient is interesting from several points of view. In the first place, she gives a history of menstruating at nine years of age. This is an evidence of precocity, as women usually do not menstruate until from thirteen to seventeen. It is well to remember, however, that there are cases upon record in which menstruation has taken place during the first year of the life of the individual, and the

child at three years of age has been fully developed, showing all the evidences of a developed woman.

Pain in the coccyx is not an infrequent symptom, and may occur as a result of conditions independent of the coccyx itself. In this patient the trouble is undoubtedly due to the injuries she has received, as there is a history of two injuries, and as we introduce a finger into the rectum and move the coccyx with it, we recognize a distinct grating of bone, as if two bare surfaces were in contact. Pain may also arise from an inflammatory condition of the sheath of the muscles attached to the coccyx or in those of the ligaments, from thickening of the periosteum of the bone, and in some cases as a reflected pain from diseased conditions of the uterus. It is not an infrequent thing to find that a patient complains of pain in the coccyx or anus as a result of a retro-displacement of the uterus. So, too, we find similar conditions in what is known as painful metritis, where the cervix is large, heavy, projects backward and is situated low down. Such patients complain of pain in sitting, also in walking, and moving about. The pain of coccygodynia is felt directly in the bone and in the muscles about it. It may occur from sitting or from walking, or change of position of the patient in bed, so the patient who has had a recent fracture and suffers from inflammation produced by it may be confined almost to one position, and be unable to change it without giving rise to a great deal of distress. In such cases, the act of defecation is attended with pain. The coccyx is most frequently injured by a fall or blow, in which the person strikes upon some object which impinges directly against this bone. It may be produced, however, in labor, where labor takes place in individuals late in life, after the bone

has become more or less ankylosed. The treatment of the condition will depend very much, of course, upon the cause producing it. Thus, if we find it is due to uterine disease, an effort should first be made to counteract and remedy that, in the hope that in so doing, the irritation in the coccyx will be relieved. It has been recommended that subcutaneous incision be made, separating the muscles and ligaments from the bone. The plan of treatment, however, is rather ineffective, and consequently, is not frequently resorted to. The only operation in serious cases that affords any certainty of relief is the removal of the coccyx. This procedure consists in making an incision over the coccyx about one and one-half inches in length, extending from just above its articulation to the extremity of the bone; the lower surface of the bone is laid bare, its extremity is pressed against, rendering tense the posterior common ligament, which is cut through, opening the articulation. Having separated the articulation we then grasp the bone with a pair of forceps, and usually this can be done by passing them between the bone and the sacrum, and the muscular and ligamentary attachments are cut close to the bone. In doing this in this patient, we have wounded a branch of the middle sacral artery. This is seized with a hemostat and we pass the sutures around the surfaces so as to secure this vessel, in the first suture. The lower end of the sacrum was somewhat roughened and bare. I propose to cut a portion of this away with the rongeur and push the periosteum over the extremity. The wound is then closed with sutures, passing the sutures around the entire surface so as to prevent the possibility of the formation of a cavity in which hæmorrhage will occur. Having

closed the wound with sutures we now wash it carefully before coating it over with collodion; place over it some gauze which is also sealed down with collodion. The gauze will be held in place by strips of plaster and a bandage. The catheter will be used for the patient for the first few days, after which she will be directed to lie upon her face to evacuate the urine, in order that in this way the dressing shall not be spoiled. This patient should recover without any unpleasant symptoms and be well at the end of two weeks.

Apparatus for Oxygenated Chloroform.—In the anaesthesia of this patient I have shown you an apparatus for the administration of chloroform with a judicious admixture of oxygen, giving what may be called oxygenated chloroform. This apparatus was introduced by Dr. Norbury, of the Hahnemann College, of this city. It makes use of a cylinder of pure oxygen, from which through a rubber tube the gas is passed into a graduated bottle containing chloroform, and from this by another tube the oxygenated chloroform vapor is carried to a metal hood which is surmounted by a bar receptacle, into which the air is expired. One advantage of the apparatus is that it does away with the danger from the use of chloroform, in the fact that there is a proper admixture of oxygen, so that the patient does not experience the smothered feeling which arises from the administration of either ether or chloroform by the ordinary method. Consequently the anaesthesia is rapid, giving rise to no struggling or effort. This patient has been anaesthetized in the clinic room before you, and although a nervous patient who would be sure to become excited when surrounded by so many spectators, there has been very little struggling, and the anæ-

thesia has been completed in four minutes. Another advantage of the procedure is that it enables us, after the anæsthesia has been completed, to give a few inhalations of pure oxygen, thus washing out from the air cells and air tubes of the lungs the chloroform vapor, restoring the patient much more quickly to consciousness. Though the patient has been under the anæsthetic for some little time, but one and one-half drachms of chloroform have been used. It is not claimed, with the expense of the apparatus and that of the oxygen, that this is a cheap method of anæsthesia, but it certainly adds to the safety in so much as but little of the anæsthetic is used, and this with a generous admixture of oxygen.

Recent Vaginal Hysterectomy.—The third patient I bring before you is a woman who recently underwent vaginal hysterectomy at St. Joseph's Hospital for inflammatory disease. The woman was brought us by Dr. Mam, chief of the Orthopedic Clinic. The patient, when she came under my observation, had fixation of the uterus and evidently a mass on either side which contained pus. The patient had been sick for some length of time, confined to bed, suffering from pain and in a condition which required prompt treatment. It was decided to do the operation through the vagina, doing a Pean's operation, attention to which has been but recently drawn by a paper read by Dr. Jacobs, of Brussels, at a meeting of the American Gynæcological Society in Baltimore, in May last. The operation, after having thoroughly cleansed the vagina, consisted in making an incision around the cervix and enlarging this by an incision about two centimetres in length on either side of the cervix, parallel to the posterior margin of the broad ligament. The tissues were dissected up anter-

iorly and posteriorly, until the peritoneum was opened. In dissecting up the tissues, care was exercised to open into the pus sacs on either side, splitting the broad ligaments and washing these out with an irrigator before opening the peritoneal cavity. Subsequently the broad ligament was seized upon either side with a pair of forceps at its lower portion to secure the uterine arteries. The tissues were then cut between the clamp forceps and the cervix, and the cervix itself amputated. This was done to render the eversion of the uterus more readily accomplished. This eversion may take place either through the anterior or posterior fornix, preferably the anterior, because it enables us the better to pass over the fundus to follow up the broad ligament and enucleate the tube and ovary, which in this case contained large pus sacs. The left tube and ovary is the one most frequently secured first, and brought down: a pair of clamp forceps is placed upon the broad ligament external to the appendages, and the remaining portion of the broad ligament is cut through. The right tube and ovary is treated in a similar manner, and when the ligament is clamped and cut, the removal of the uterus is accomplished. Quite large pus sacs were found on both sides in this patient, more particularly upon the left. The wound was then dressed by holding apart the forceps placed upon the two ligaments, and passing over their ends a pledgett of iodoform gauze to keep the intestinal coils from impinging against the ends of the clamps and thus becoming injured. A second piece of gauze was carried between the clamps and around them, compressing the tissues so that no bleeding vessel should be neglected, the clamps removed at the end of twenty-four to forty-eight hours, according to

the condition for which the operation was done. In inflammatory conditions they may be removed at the earlier period, while in removal of the uterus for fibroids the clamps should be permitted to remain longer. The gauze is allowed to remain from four to six days. After its removal the vagina should be irrigated with plain hot water or a 1-40 sulphurous acid solution. This patient is brought us complaining of a certain amount of distress in the left side, in the region of the left groin. She says she experiences a pulling or cutting sensation. We make a careful examination and are unable to find any sign of induration in the pelvis; do not find any special tenderness in this region. I am inclined to believe the trouble is due to some adhesions existing as a result of the inflammation for which the operation was done. Possibly this binds or affects the descending colon, and gives rise to the inconvenient sensation she has experienced. It is hardly to be expected that a patient who has had an inflammatory condition of so serious a character as to necessitate the removal of the uterus, ovaries and tubes, whether it is done through the vagina or by the abdomen, should be entirely free from unpleasant symptoms subsequently. These symptoms may be induced simply by adhesions that have existed as a result of the procedure, or may occur from the effect of the sudden climacteric induced by the removal of the organs. In this patient, we will direct that her bowels be kept regular; she will be given a tonic and advised to wait for a while with the hope that her unpleasant symptoms will gradually disappear.—*Medical Fortnightly*, Dec. 16, 1895.

A YOUNG MOTHER.

Dr. Gleaves reports the case of the

youngest mother in Virginia. Annie H—— was born July 15, 1885, and September 10, 1895, she was delivered of a well-formed child weighing five pounds. She was only ten years and nearly two months old. The girl has no development of a woman, although she menstruated regularly since she was five years old.

The labor was a short and uneventful one, and two hours afterward the child-mother wanted to get up and dress, and would have done so had she been permitted.

There were no developments of the mammae or secretion of milk; the baby was nourished through its short existence (as it only lived a week) by its grandmother, who had a child only a few months old. The parents of this child are prosperous, intelligent and worthy people, and there is no doubt of their child's age.

The child is now well and plays about with the other children as if nothing unusual had happened.—*Med. Record*.

REMARKS ON THE TREATMENT OF DISEASES OF THE UTERINE APPENDAGES. P. MICHINARD, M.D.

It is my purpose, in this paper, to present to you as briefly as possible some of the various methods that are being applied in the treatment of inflammation of the uterine appendages, referring occasionally to my personal experience, and to illustrative cases.

It was left to Mr. Tait to recall to the attention of the profession that which was written about and forgotten over fifty years ago—the existence of salpingitis. It was also left to Mr. Tait, in 1872, when he removed a suppurating ovary, to re-establish the operation of oophorectomy. At about the same time that Tait removed this diseased ovary, Battey, of Georgia,

established the principle of removing healthy ovaries for establishing artificial menopause. The brilliant results of these two operators appear to have upset the surgical minds of the day. Encouraged by improved antiseptics many fairly experienced surgeons began to remove tubes and ovaries. In a short while the contagion spread, so that the operation was done by men who did not possess the required diagnostic ability. It sufficed for a woman to have epilepsy, or to be hysterical for her to lose her ovaries; if she had pains in her pelvis she lost her tubes. The operated soon were counted among the thousands, and the deaths were not very far behind. The question finally presented itself: Are the diseases for which all these operations are performed as dangerous as the operations themselves?

Then there developed a class of conservative and preservative gynaecologists. These abandoned the removal of healthy ovaries for the cure of neuroses and applied a system of treatment calculated to cure or relieve the diseased organs without their removal. Among the conservative measures is curettage of the endometrium and application of counter-irritants to parts adjoining the diseased structures.

This curettage is followed by the application of antiseptics to the endometrium, or the establishing of drainage of the uterine cavity.

The counter-irritant is usually Churchill's tincture of iodine applied liberally over the anterior and posterior vaginal fornices, associated or not with tamponade of the vagina. The first part of this system of treatment is resorted to because every case of salpingitis is supposed to be the consequence of an endometritis. That such conservative measures are productive of good there can be no

doubt; that they have occasionally cured I can vouch for. The treatment, it is true, is long and tedious, extending sometimes over months. I can recall one specially bad case in which the pelvis seemed filled with a hard, painful mass on either side of the uterus. The patient had been married five years, was sterile and had been confined to her room for several months. After more than a year of treatment she became perfectly well and is now a healthy mother.

I have had a fair number of *perfect cures* from this treatment. I use the expression *perfect cure* to distinguish them from those cases in which the patients are relieved of all or nearly all the pains, but in which the tubes and ovaries do not regain their normal size. They are symptomatically well, although the organs remain somewhat enlarged. But is not that better than entire extirpation of organs at the risk of life? There are cases in which this system entirely fails; but there are also cases in which double salpingotomy entirely fails to give relief. Where the disease is greatest in the mucous membrane of the tube (endo-salpingitis), conservatism will rarely cure; but where the inflammation has extended to the connective and muscular tissue (interstitial salpingitis), or to the peritoneal covering of the tube (peri-salpingitis), leaving the inner lining only slightly diseased, conservatism often will cure. In these cases the tubes are large, tender and sometimes boggy from œdema.

I acknowledge I do not know of any way way to differentiate between the different conditions by a vaginal examination. Of course, the task is easy where there is fluctuation. I believe in giving every case the benefit of the doubt and trying conservatism for some time before proposing removal.

Where conservatism has failed I have had recourse to preservation as advocated by Dr. Polk. This consists, where the disease seems to be interstitial and peri-salpingitis, of opening the abdomen, breaking up the adhesions, cleaning the pelvic cavity and leaving the liberated organ remain. I have done this with apparently good results. Sometimes one meets with one or two small abscesses in the midst of lymph between the tube and a knuckle of intestine. These offer no special difficulties.

Where the fimbriated end of the tube is closed and the tube distended with mucous, Polk cuts off the end, washes out the tube with antiseptic solution by means of a small syringe, and then sews the mucous membrane of the tube to the peritoneal covering in such a way as to leave the canal open. He reports good results. I have never done this.

When it becomes necessary to remove the tube this operator, the conditions being favorable, does not apply a ligature about the tube as has been and is still being done. He believes that "many of the recurrent symptoms to which patients are often subjected are due to the ligature upon the tube."

He applies a silk or catgut ligature to the ovarian vessels just outside the ovary and fimbriated end. The tube is then dissected out as far as the uterus, fine ligatures being applied to bleeding points. The ovary is cut away and all bleeding points caught or tied. To the raw surface left in the broad ligament he stitches the round ligament. By an oblique incision he cuts away the tube at the horn of the uterus and opposes the raw surface also to the round ligament. This is my understanding of the operation as I read it in the recent work of Keating and Coe. I

have never seen the operation performed and have not done it myself. Recently, in a bad pus case, in which I was assisted by Drs. Bloom and Fortier, I cut the tube away close to the uterus, ligated the vessels and sewed the uterine peritoneum over the stump of the tube and all, closing over everything perfectly. This is now the twelfth day and the patient is doing well.

For some cases of simple and suppurative salpingitis, Dr. Emmett has recommended confining the patient to a bed the foot of which has been elevated 18 or 24 inches and the administration of hot vaginal douches with the patient in that position. I have tried the method with both failure and success. One of my successes—the only very good one—was in a case which was treated in ward 43 of the Charity Hospital. The tubes were very large and the suffering so great that the patient asked for operative treatment. I requested my assistant, Dr. J. B. Elliott, Jr., to dissuade her from that notion and to obtain her consent to try six weeks of the Emmett treatment. She left the hospital two months after her admission.

Some time later she sent me the following letter:

"I feel justified in stating that your treatment cured me. My pains have gone, but I still use the douches of carbolyzed water; have no discharge; am very robust; my weight is 166 pounds; the picture of health. How glad I am that I did stand on my head and did not undergo the operation. Thanks to Dr. Elliott for talking me out of the notion. Have gone to housekeeping since my return home, and am happy and healthy."

I have not heard from her since. I regret, however, not being able to report other similar good results.

The practice of removing both sets

of appendages where only one side is diseased has been abandoned. Where an ovary contains small cysts Polk, Pozzi, Martin and Shroeder have recommended resection of the ovary. About two years ago I first tried this preservation method. The patient applied to ward 43; she was eighteen years of age; was engaged to be married. One ovary contained a hæmatoma about the size of a large lemon. This one was removed. The other contained a cyst involving about one-quarter of the organ. I cut off the free part of the sac, mopped away the contents, and not being able to stitch together the remaining tissue, scraped the bottom of the sac with the handle of the scalpel, wiped the parts thoroughly and dropped the crippled organ back into the cavity. Two months later she married. Nine months after her marriage she became a mother. A few weeks ago she came to my office when I found her to be in the fourth month of pregnancy and her baby was not more than four months old.

In 1892 Pozzi began to practise deep igni-puncture in cases of ovaritis and of many small surface cysts with complete cures. He makes as many as twelve deep punctures in the ovary. I have not yet tried the method.

Galvanism has some adherents; massage fewer. Where pus has gathered in the tubes we occasionally see cures established with simple treatment, and sometimes without any treatment whatever. Not very long ago I saw a case with Dr. S. P. Delaunp, in which there was a large fluctuating mass on one side of the uterus, associated with pain and high fever. During the night preceding the day appointed for operative interference there escaped from the uterus several ounces of pus. The patient at once began to improve. Hot anti-

septic vaginal douches were then used every day. A rapid recovery followed.

A woman applied to Ward No. 43, a little over a year ago, with fluctuating masses in the pelvis. She was too weak then to admit of operation. She was put to bed, and rest and strengthening treatment applied. A few days later it was noticed that small quantities of pus escaped from the vagina. The uterus was then dilated, when larger quantities of pus escaped daily. Hot antiseptic vaginal douches were administered. She made a rapid recovery. I have since seen her at my office from time to time, and she is still well.

I refer to these cases merely to show what conservatism can sometimes accomplish. But, of course, there are many cases (and perhaps a majority) of pyosalpinx which can not be benefited with anything short of surgical interference.

The surgical treatment heretofore applied was vaginal incision and irrigation of the sac. To-day irrigation is not resorted to until twenty-four or forty-eight hours after the incision. The cases are few in which vaginal incision of the sac is curative. Removal of the suppurating tubes and ovaries through an opening in the abdominal wall—*cœliotomy*—up to a short while ago was the only other measure applied. The great number of firm adhesions encountered in these cases, frequently causing rupture of the pus sac during the enucleation, have caused the operation to be considered one of the most difficult and most dangerous in surgery. In my experience the danger is greatly lessened by the use of the gauze pads instead of the ordinary flat sponge. If rupture do occur the pus is less apt to penetrate the different layers of the pad than it is the meshes of the sponge. Within the past three

weeks I have had occasion to appreciate the value of the pads. In two very difficult cases the sacs ruptured during the manipulating, and yet not a drop of pus appeared to touch the tissues, so perfectly did the pads protect them. Both cases are doing very well.

Recently nearly all cases of inflammation of the tubes and ovaries—suppurative and simple—have been treated by removal of the uterus alone, or uterus and appendages, through the vagina by Péan, Segond, Richelet, Doyen and Jacobs, each operator making certain modifications which bears his name. This method of attacking the diseased appendages has not yet met with much favor in this country, Dr. Polk being about the only enthusiastic convert.

The time allowed me will not admit of my giving you a full description of the different operations, and, therefore, I will ask you to consult the admirable article of Dr. Garceau in the March (1895) number of the *American Journal of Obstetrics*. I will, however, say that one surgeon removed the uterus either whole or by morcellation; another removed it by first splitting it on its anterior face; another by splitting the cervix transversely, and another by removing conoidal pieces either anteriorly or posteriorly. Some combine two or three methods. They all use clamps.

"If, during the operation a pus cavity is opened, the operator waits until the flow of pus ceases, enlarges the opening with his finger, washes out the cavity with the influx catheter, and proceeds as though nothing had happened."

"If the cavities have not been opened during the operation they may be searched for after the removal of the uterus. The pus tubes should be incised methodically in order not

to soil the peritoneum. A mounted sponge is placed beside and above the tube. This steadies it and makes it bulge into the vagina, at the same time shutting off the serous cavity. Then a cut with a knife opens the tube and the contents flow into the vagina, while a pair of forceps at the same time seizes the mouth of the incision to prevent the sac from retracting upward. The cavity is washed out with corrosive sublimate solution and the tube sac now removed in so far as possible with the fingers, taking care not to tear the viscera."

In speaking of the treatment of adhesion and the appendages, Garceau tells us that when they can be separated from the adhesion it is proper to remove them, otherwise they may remain.—*New Orleans Medical and Surgical Journal*, Dec., 1895.

THE TREATMENT OF ECTOPIC PREGNANCY WITH INJECTIONS OF MORPHINE.

In the section for obstetrics and gynecology of the recent Congress of German naturalists and physicians, Prochownick (*Deutsche medicin. Wochenschr.*, 1894, No. 40, Suppl. No. 25, page 170.) advocated the treatment of ectopic pregnancy during the first months by means of injections of morphine instead of by operation. He reported four cases successfully treated by a single injection through the vagina of from gr. 1-2 to gr. 3-4 of morphine into the intact gestation sac without aspiration. In three of the cases the pregnancy had not passed the twelfth week: in the remaining one, which was complicated by gonorrhea, this period had been passed, and in this case also an abscess formed that discharged through the rectum. In a

fifth case the injection was made through the anterior abdominal wall, and the sac was infected by the needle passing through an adherent loop of bowel; septicemia developed and celiotomy was required, but recovery ensued. It is important to refrain from aspiration and to make but a single injection. The operation is contra-indicated if the twelfth week has passed, if abortion is in process of occurrence, and if chronic gonorrhea or acute perimetritis exist. The vaginal is the only safe route of injection.—*Medical News*.

SPEEDY METHOD OF DILATING A RIGID OS IN PARTURITION.

At a meeting of the Obstetrical Society of London, Dr. Farrar (Gainsborough) gave the details of two cases in which he had used a ten-per-cent solution of cocaine as an application to the rigid os. In one case he had applied the cocaine after endeavoring vainly to relax the cervix by means of chloral, bromide of potassium, and morphia, and the most persistent attempts at digital and mechanical dilatation, with and without chloroform. He decided upon incising the os, and used the cocaine to this end. After five minutes he introduced the finger as a guide to the scissors, and, to his surprise, found the os widely dilated. In the second case, a primipara, forty-eight years of age, he used every effort, as before, to produce relaxation, and waited three days before making the application of cocaine, which was immediately successful. In four minutes the os had yielded. He considered the dilatation to be due to the cocaine in both cases. Dr. Armand Routh said that Dr. Dibbs, of Shankin, had recommended cocaine as relieving the pains of the first stage of labor, and that Mr. Head Moore advised cocaine and boric acid pessaries

in cases of rigid os. He himself had found it useful. The president, Dr. G. E. Herman, said that two cases were rather a slender foundation upon which to base a conclusion, but if Dr. Farrar's results were confirmed by further experience, he would have made a valuable addition to our obstetric resources.—*The Lancet*.

INEBRIETY IN WOMEN. BY ANDREW WILSON, M. D.

OF late days much interest has been taken in the topic which heads this article as its title. The *Daily Telegraph* started a discussion on the subject a short time ago, and, as is usual in such cases, a mass of opinions, suggestions, and propositions in the way of cause and remedy was elicited in the course of the abundant correspondence which ensued. Perhaps the discussion is only one phase of the inebriety question which is everywhere being "boomed" at the present time. There appears to have been an awakening on the subject of intemperance all round, and an earnest desire has been aroused once again in social history to get at the root of this great social evil, and as far and as quickly as possible to modify it or "reform it altogether."

The special phase of intemperance—that among women—has, of course, many very pathetic and heart-breaking phases of its own. First and foremost, there is the loss of self-respect, which is more to a woman than it is to a man. I say this advisedly, because I think it is probable that a lapse in any direction on the woman's part is attended with much more serious consequences than a similar slip on the part of the man. A woman's self-respect is her all. She is or can be damaged nowhere more severely than in her own eyes.

The lowering of the standard of moral worth is to her an irreparable loss. She rarely recovers from the blow or event which she knows or thinks places her at a lower level than her sister-women.

Physicians are commonly of the opinion, expressed as the result of experience, that the reclamation and cure of a drunken woman is a task of extreme difficulty. They will tell you that for one man who pulls himself together and gets straight again, there are hundreds of women who are irreclaimable and incurable. I say the reason why the cure of inebriety in women is so rare depends on the fact that the loss of self-respect means so much more in the way of despair to the woman than it does to the man. And there is another reason still. Society, which looks leniently upon the faults of men, judges with Spartan severity the slips of women. For this, women have to thank women. It is they who are hardest on the erring sister: theirs is the voice lifted loudest in her condemnation: theirs is the hand which points to the streets: and theirs the sentence which ostracizes their sister forever as a social pariah. The case of the man is very different. He is always treated, however many his faults, under a social first offender's act. When people talk, as talk they will and do, about the necessity for preserving intact the purity of society, they conveniently forget that there are two parties to be dealt with, and that the attainment of the social millennium is only to be accomplished by the condemnation of the man equally with the ostracism of his victim. But, as Rudyard Kipling says, "that is another story" altogether.

The recent discussion on drunkenness in women has elicited an opinion—I can hardly call it a fact—that

inebriety is on the increase among females. Lady Frederick Cavendish, and other social reformers, boldly assert this opinion as true. The tipping of the East End gin-shop is said to be reflected in the *boudoir* of the West End. The craving for stimulants, it is held, follows upon the life of unnatural excitement many women lead, and this may possibly be perfectly true.

The question of remedy is perhaps as difficult of discussion as that of the whole drink-traffic or of prostitution itself. Personally, I scarcely see that abolition of the drink-traffic will better an evil which reaches far below the surface of things on which the public house stands. Limit licenses, and you only increase a monopoly which, as things are, exists in full force. I do not believe legal measures alone will ever touch the root of drunkenness either in women or in men. They may palliate the evil: they can never cure it.

Regarding the question from the biological stand point, one seems to get a little hope from the consideration that to remedy evils of our constitution we must work constantly, expecting to influence the living host by degress and by small variations rather than by fits and leaps and starts. In every living species we find those who go to the wall: sad fact though it be, these represent the wasted lives,—the suppression of the unfit,—in a word, which clears the ground of those who cumber it. Are we, then, working unconsciously to a better state of things through all this terrible sacrifice of health and hope and life? I would fain hope so, although the prospect, I admit, is depressing enough as it stands.

Agencies are happily at work around us which must influence the question of inebriety in time. Education is doing much, and example

is perhaps doing more. The spirit of the time is in favor of moderation, abstinence and a higher standard of life all round. I say so, despite the fact that Cassandra's are warning us that society is rotten to the core, and that the worst days of Rome are fast being repeated in our midst. Perhaps all this is inevitable from the rate at which we live. Each day of Europe is really "a cycle of Cathay," and we must pay for the pace at which we go.

It seems absurd for us to expect that, in a complex system of civilization like ours, we should have perfection of life and living attained so quickly as philosophers of an ultra-hopeful turn of mind would expect. "Slow and sure" is the way of life all round: and surely we may look with some hopefulness to the decrease of inebriety among men and women alike, when education and like agencies have had time to make their mark. Meanwhile, if there is no panacea for the evil, there is no need to despair. While we wait for better things, no man need find in waiting an excuse for not putting his hand to the plough, or for delaying to work as best he can for the bettering of our life as it exists today.—*Annals of Hygiene*, Dec., 1895.

PUERPERAL FEVER.

There is first a chill, then fever, face is flushed, there is a sensation of weight in stomach, shortness of breath, restlessness, with a temperature of 104° and coated tongue. Give the liver a slight stimulation, quinine in full doses to control fever, with chlorate potash, a small amount to each dose of quinine. Also give muriated tincture of iron in ten-drop doses every four hours until all fever is gone. Apply hot cloths over womb. Use vaginal injections of hot carbol-

ized water every six or eight hours. Support patient by light but nourishing diet. Keep the patient quiet, comfortable and clean. Change the clothes often.—*Medical World*.

APPENDICITIS DURING PREGNANCY.

Questions of interest to the profession are constantly arising respecting the occurrence of appendicular inflammation during pregnancy, and the treatment thereof, whether medical or surgical. To country practitioners especially is this a subject of importance, as the exploration of the abdominal cavity necessitates the presence of a competent surgeon, prepared for any emergency. Dr. N. B. Bayley reports a typical case in the *New York Medical Record*:

"An American lady, multipara, was visited when in the sixth month of pregnancy. Her symptoms pointed to an intestinal colic attack, there being looseness of bowels and marked pain in right side. The usual remedies having been prescribed, the symptoms moderated for a couple of days. Then Dr. Bayley was again sent for, and he found the patient suffering from a combination of symptoms suggesting appendicitis. There was pain over right half of abdomen, with nausea; rigidity of muscular walls over right iliac region, the McBurney point being clearly marked on pressure being applied.

The treatment consisted of administration of morphine, one-sixth grain hypodermatically, followed by phenacetin in five-grain doses every three hours. The morphine was later replaced by opium, one grain every three or four hours for two days, and subsequently smaller doses. Calomel was administered in four-grain triturates every three hours, until soreness of gums resulted.

Then potassium chlorite was used

as a mouth wash and gargle. The calomel, with occasional doses of Rochelle salts, caused free movements of bowels and relieved the tympanic condition. Hot turpentine applications were made externally.

The temperature steadily rose to 103° F. on fourth day. A lessening in rigidity of muscles over iliac region occurred contemporaneously with decline in temperature. Within a week the temperature was normal, and patient became convalescent. She had a normal, though a more tedious labor than on previous confinements, and made a satisfactory recovery.

With a view to corroborate or strengthen his report of this case, Dr. Bayley furnishes some details of a case of appendicitis with similar symptoms which was under his care at the same time. The second patient was an unmarried woman of twenty-eight years, who had suffered from a previous attack of appendicitis during the year. The prominent symptoms were: Fever rising to 103° F., rigidity of muscles in iliac region, slight dullness, pain at McBurney's point, and somewhat tympanitic abdomen. The treatment was again by opium and calomel, together with ice bag, instead of hot applications of turpentine. Recovery occurred.

INVERSION OF THE UTERUS.

Details of an operation for inversion of the uterus of five days' standing are given by Drs. Davis and Packard of New York, in the *New York Medical Record* of Oct. 26. The *modus operandi* is thus stated:

The operation was begun by pressing the index and middle fingers firmly and steadily against the presenting fundus, at the same time making gentle counter pressure

through the abdominal wall. Gradually the uterine wall yielded, so that at the end of fifteen minutes the two fingers were buried in the tumor as far as the distal joint. The whole hand was now passed into the vagina, and four fingers pressed firmly against the mass, thus pushing it toward the cervix by continuous pressure, the elbow meanwhile resting on the bed as a point of support. With the help of the thumb, some degree of massage to the uterine walls was accomplished, with a view to rendering them more pliable and thus more tractable to further manipulations. Very soon the uterine walls began to soften, whether from the relaxing effect of the anæsthetic, or from the manipulations, or from both combined, and the cervix as felt behind the pubis grew appreciably softer. At the end of half an hour it was possible to carry the fundus before the four fingers fairly into the mouth of the constricting cervix, where they were steadily held as a wedge.

The entire proceeding occupied an hour. Unfortunately, the woman, who was in a very weak condition, died in a few days after the operation from peritonitis and metritis.

TREATMENT OF PUERPERAL CONVULSIONS WITH VERATRUM VIRIDE.

Editorially, the *New York Medical Journal* of Nov. 23, says: "Dr. Edgar's recent declaration, that he did not believe there was any drug, with the possible exception of chloroform, that was of as much value as veratrum viride in eclampsia, coupled with Dr. Chandler's testimony to its efficiency, goes far to show that experienced obstetricians in general are less forgetful of the virtues of veratrum than its compar-

active inconspicuousness in current literature might lead one to suppose was the case. It is very sure that an overwhelming preponderance of our therapeutical resources does not

reside in the novelties that have been introduced so profusely within the last few years—perhaps no preponderance at all.”

BOOK REVIEWS.

(All Exchanges and Books for Review should be sent to Dr. C. G. CUMSTON, 826 Beacon St., Boston.)

PRINCIPLES OF SURGERY. By N. SENN, M.D., Ph.D., LL.D., Professor of Practice of Surgery and Clinical Surgery in Rush Medical College, Chicago; Professor of Surgery in the Chicago Polyclinic; Attending Surgeon to the Presbyterian Hospital; Surgeon-in-Chief to St. Joseph's Hospital; Ex-President American Surgical Association, etc., etc. Second edition. Thoroughly revised. Illustrated with 178 wood engravings and five (5) colored plates. Royal Octavo. Pages xvi, 656. Extra cloth, \$4.50 net; Sheep or Half-Russia, \$5.50 net. Philadelphia: The F. A. DAVIS Co., Publishers, 1914 and 1916 Cherry street.

We heartily endorse this most excellent work, which has now arrived at its well-merited second edition. We know of no better volume on general surgery in the English language for the student and practitioner. Throughout it contains matter that is so necessary for the understanding of scientific surgery, namely pathology, and this is a feature that is most neglected in many of the text-book offered to the student.

The second edition is much en-

larged and has been thoroughly revised and brought up to date.

Five handsome plates and many figures illustrate the book.

A SYSTEM OF SURGERY. By American Authors. Edited by FREDERIC S. DENNIS, M.D., Professor of the Principles and Practice of Surgery, Bellevue Hospital Medical College, New York; President of the American Surgical Association, etc., assisted by JOHN S. BILLINGS, M.D., LL.D., D.C.L., Deputy Surgeon-General, U. S. A. To be completed in four imperial octavo volumes, containing about 900 pages each, with index. Profusely illustrated with figures in colors and in black. Volume III, 908 pages, 207 engravings, and 10 colored plates. Price per volume: \$6.00 in cloth; \$7.00 in leather; \$8.50 in half morocco gilt, back and top. For sale by subscription. Full circular free to any address on application to the publishers, LEA BROTHERS & Co., Philadelphia.

The third volume of this great work on Surgery deals with the larynx, tongue, jaws, teeth, salivary glands and chest, the diseases and

surgery of the eye and ear, the surgical diseases of the skin, the surgery of the genito-urinary system, and with syphilis. The list of contributors to this volume comprises Drs. D. Bryson Delavan, of New York; H. H. Mudd, of St Louis; Charles B. Porter, of Boston; Willard Parker, of New York; F. S. Dennis, of New York; George E. DeSchweinitz, of Philadelphia; Henry D. Noyes, of New York; Gorham Bacon, of New York; L. McLane Tiffany, of Baltimore; William A. Hardaway, of St. Louis; J. William White, of Philadelphia, and Robert W. Taylor, of New York.

It is needless to say that the articles are excellent in every detail and show both care and labor in their preparation.

We do not think that venereal diseases should find their place in a work on surgery, but when so elaborate and excellent an article as that contributed by Dr. R. W. Taylor to this volume is to be had, we cannot offer further criticism.

MANUEL DES MALADIES DES FEMMES. Par le Dr. A. LUTAUD. Paris, 1896. 3d edition. L. Bataille et Cie. Editeurs.

This very excellent manual of some five hundred pages is to be most highly commended. In its pages will be found a very complete résumé of modern gynecological pathology and therapeutics.

Its distinguished author, whose competence in the matter of diseases peculiar to women is so well established, would be enough to guarantee the excellence of a book coming from his pen.

The work is profusely illustrated by good figures and ends with a number of useful formulæ.

We desire to extend our warmest

congratulations to the author upon the success that his book has achieved.

HEBAMMENKUNST. By PROF. D. S. SCHULTZE. 11th edition, Leipsiz. 1895. W. Engelman, Publisher.

This volume, designed for the use of midwives, would, as a matter of course, not find much use in the United States, as these practitioners are fortunately few in number with us.

On the other hand the book is far too complete for the comprehension of our trained nurses. As an elementary book on obstetric science it might be useful to the student.

ELECTRO-THERAPEUTICAL PRACTICE. By CHAS. S. NEISWANGER, PH. G. Professor of Electro-Physics, Post Graduate School of Chicago, Chicago, 1895. E. H. Colegrove & Co., publishers.

We cannot imagine in what manner this book can be found of use.

It is far too incomplete, even for its kind, and if simply consulted as a guide to the treatment of disease by the employment of electricity might lead to a grave misunderstanding of this useful though much abused aid in the treatment of the medically or surgically diseased patient.

MANUAL OF SYPHILIS AND THE VENEREAL DISEASES. By Drs. J. NEVINS HYDE and FRANK H. MONTGOMERY. Philadelphia, 1895. W. B. Saunders, 925 Walnut St., Publisher. Price \$2.50 net.

This is a clear and comprehensive book on the subject of venereal diseases, and is the latest addition to Mr. W. B. Saunders, series of manuals.

It is in every respect up to date, its only weak point being the section devoted to gonorrhœa in the female. We are a little surprised to find no mention made of the treatment of acute specific urethritis by that excellent method of irrigations with potassium permanganate.

The book is nicely illustrated by colored plates and figures, and is in every way a practical one.

MANUAL OF THE PRACTICE OF MEDICINE. BY GEORGE ROE LOCKWOOD, M. D. Philadelphia, 1896. W. B. SAUNDERS, Publisher. Price, \$2.50 net.

We have carefully gone over this book and find it first-class in every respect and fully up to date.

A feature that we wish to particularly commend is the number of temperature charts, illustrating the various fevers, etc. The book is well illustrated by plates and figures, which are good and in every respect does credit to both author and publisher and can be well recommended to both physician and student.

PEDIATRICS. BY T. M. ROTCH, M.D., Professor of the Diseases of Children. Harvard University, Philadelphia, 1896. J. B. LIPPINCOTT & Co., Publishers.

Dr. Rotch has presented the medical profession with a work that may certainly be qualified as authoritative and original.

As might be expected, much space is given to the feeding of infants and is highly interesting and instructive. We find the excellent firm, "The

Walker-Gordon Laboratory Co.," only mentioned once, and we think that more prominence might have been given them, considering the fact that the good results of "modified feeding" is in a great measure due to their efforts.

The work treats the entire field of infantile pathology in a very complete manner; to be particularly noted are the author's researches on the blood.

The plates are good as are the numerous photographic reproductions, although in many of them we would have rather preferred more of the child and less of the nurse.

On the whole the book may be considered as the best treatise on the subject that has as yet appeared in English.

GYNÆCOLOGICAL TRANSACTIONS.
Vol. XX, 1895.

This volume contains as fine a collection of papers and discussions as could be desired.

We cannot mention all the titles of the thirty *mémoires* contained in the pages of this most credible volume, but would particularly call attention to the President's address: Dr. Fernand Heurotin's most admirable article on Conservative Surgical Treatment of Para and Periuterine Septic Disease; also Deciduoma Malignum, by J. Whitridge Williams, M. D.; Dr. J. Clifton Edgar, on Deep Incision of the Parturient Cervix, and Charles B. Penrose on Bacteriology in Pelvic Surgery.

This year's work of the American Gynecological Society will mark itself in the progress of surgery of the female.

ANNALS

—OF—

GYNÆCOLOGY AND PÆDIATRY.

DEPARTMENT OF PÆDIATRY.

REVIEW OF PÆDIATRY.

RATIONAL THERAPEUTICS OF CHOLERA INFANTUM. By Dr. GUSTAVUS BLECH, M.D.

No strict rules can be given for the treatment of disease. It is for this reason that so many physicians say we do not treat a disease, but we treat an individual. True enough, we treat the individual, but what we have most of all to consider is the disease. The individual will dictate us alterations and modifications in our treatment.

A general plan of treatment may be outlined, however, and I will try to do so in regard to one of the most fatal diseases of babyhood—cholera infantum. There is a certain philosophy in therapeutics which I would frame in the three following rules: (1) Remove, if possible, the disturbing causes: (2) treat symptoms which *per se* are liable to endanger the life of the patient: (3) sustain vitality.

Clinical experience shows that this disease is of a grave character, producing death in a large proportion of cases. Heat *per se* is not the immediate cause of this disease, but it influences its course considerably. There-

fore, gastric or intestinal disturbances in summer demand closer attention than those which occur during the colder season. Cholera infantum is a disease met even in the palaces of the rich, although not so often as in the tenement houses of the poor, which fact proves again that bad air, filth and lack of ventilation are also of a predisposing influence, as well as an obstacle to a quick cure. The mortality in the tenement houses is larger than that of the richer parts.

If we consider the aforesaid, we shall first of all, as regards the treatment of this disease, have to restrict diet.

As soon as called to a case of cholera infantum, prohibit, for the first day, any food whatever. Mothers have no right to nurse the little patient either. Strict instructions must be given in that direction, because the timid mothers are often inclined to quiet the crying babies by putting them to the breast.

Remedies are of very little value. Beginning with calomel, salol, and all the newer antiseptics, finishing with subnitrate of bismuth—they have all proved a failure, for none of them work quickly enough.

The treatment as outlined by Dr. Elmer Lee, of Chicago, in his cases of typhoid fever, proved a success in my hands during last summer, and under this treatment I have lost only one patient out of twenty-three, while the monuments of my skill, exercised during the year 1893, are decorating the cemeteries of the State of Connecticut.

So far as I knew, the best anti-septic (which has also a strong tendency to reduce local inflammation) was peroxide of hydrogen (medicinal) until hydrozone was used by me. Hydrozone being twice as strong as Marchand's peroxide of hydrogen (for economical reasons), the latter drug is preferred by me. This remedy can be administered internally as well as externally.

I add a tablespoonful of hydrozone to a pint of water for washing out the stomach. The vomiting ceases, after the first washing, as a rule. If necessary, this procedure can be repeated. If the vital power of the little patient is not too low it can produce no harm. But in every case, no matter how far advanced, I do not omit an irrigation of the bowels, for which purpose I use a soft rubber catheter attached to a common bulb syringe. The catheter is introduced as high in the colon as possible. It is unnecessary to say that the water must first be sterilized. I do not agree with Dr. Lee in using hot soap water. On the contrary, I use cold water, and add to each quart about two ounces of hydrozone. The improvement after the first or second irrigation is marked. If necessary, these irrigations can be repeated every two hours.

Among other remedies there are only two to be employed, morphine and strychnine. Both ought to be administered hypodermically. Their indication is too well known and they

are about all we need. No anti-pyretics should be given. If the fever is very high and if the irrigation of the bowels does not reduce it, the whole body should be washed with alcohol.

The diet for the next twenty-four hours should be very light indeed. Sweet, strong Russian tea is all I allow.

Each individual case will teach us when food can be allowed again.

Since the adoption of this mode of treatment I have met with the most remarkable success, and no honest practitioner should refuse it a trial.—*N. Y. Medical Journal, March 2, 1895.*

SARCOMA OF THE KIDNEY IN CHILDREN. By D. A. K. STEELE, M.D.

I have chosen this theme for the sole reason that a number of cases falling under my observation within the last few years have forced me to become somewhat familiar with the manifestations of kidney sarcoma in the young.

History.—I shall limit myself to the kidney sarcomas of the child, because of their frequency as compared with other solid tumors of the kidney, such as carcinoma, fibroma, lipoma, etc. Starr states that new growths of the kidney in children are for the most part, if not entirely, malignant. Benign growths may occur, but statistics do not record any that have been the subject of surgical interference.

Sarcoma may affect the kidney either primarily or secondarily, but it is only to the primary growths that I shall ask your attention at present. Primary sarcoma, as a rule, involves one kidney only. Paul, of Liverpool, states that nearly half the cases are bilateral, but his experience does not accord with that of the majority of surgical writers upon the subject.

Morris, of London, states that myosarcomas are the only bilateral ones, and that, in the rare instances in which both kidneys are involved, the one is secondary to the other.

As a rule these tumors grow rapidly, often to an immense size, and destroy life by their local progress, which is usually along the course of the renal vessels. These renal tumors of children are usually of soft consistence, luxuriant growth, and vascular on the surface: they weigh anywhere from a few ounces to many pounds, seven or eight pounds being a common size. In my experience they have been always unilateral. Either kidney may be affected. They may originate either in the fibrous stroma of the cortex, or in the submucous cellular tissue, and in their ongrowth they usually preserve the smooth outlines of the kidney, although often only a limited portion of that organ is involved in actual sarcomatous degeneration. They are, therefore, primarily extra-renal, although usually encapsulated, and as they grow they distend or surround the kidney rather than infiltrate it. This is the reason, probably, that examination of the urine so seldom reveals any evidence of the presence of a tumor: although Hennoch, of Berlin, in speaking of the absence of urinary symptoms, thinks it may be due to pressure or displacement of the ureter and a gradual destruction of the kidney, rendering it incompetent to carry on its functions.

The growths may be either of the large small round-cell variety of sarcoma, the spindle-cell variety being exceedingly rare. Biggs, Starr, Paul and Hennoch state that we often meet with myxosarcomas, myosarcomas, and occasionally cystosarcomas, although the medullary form is probably the most frequent. The myosarcomas are probably of congenital

origin, as they consist of a mixture of striped muscular fibre and sarcomatous tissue.

Etiology.—In regard to the origin of these tumors, little is known. Some of them are undoubtedly congenital, as, for example, the myo and rhabdo sarcomas, which contain transverse striped muscular fibres. Renal calculus is mentioned as an occasional cause; traumatism, irritation of a pyelitis, or retention of urine, as frequent exciting causes. More frequently we are unable to discover any assignable cause. The tumors are met with more frequently during the first ten years of life: indeed the majority of them are found during the first five years. In a table of 54 cases mentioned by Starr, 9 were under one year old, 17 between the ages of one and three, 18 between three and five, making 44 of the 54 under the age of five years. Sex seems to play an unimportant part in the development of these tumors: in 40 cases recorded, 22 were females and 18 males. Of 30 cases, the right kidney was the seat of the new growth in 14, the left in 12.

Symptoms.—In reaching a correct diagnosis, we depend in the first place upon the presence of a tumor of rapid growth, springing from the loin, and displacing the abdominal contents forward and to the median line. Pain is an inconstant symptom, and when present is usually due to secondary causes, as intestinal obstruction, pressure upon adjacent viscera, compression of ureter, etc: when present as a primary symptom it indicates a hard tumor: it is uniformly absent in the soft, rapidly growing ones. Progressive emaciation is uniformly present, at first not very marked, but as the tumor increases in size it becomes one of the most prominent symptoms. Indeed, Hennoch directs attention to the presence of an ab-

dominal tumor and progress of emaciation as being the two most reliable symptoms of sarcoma of the kidney in children. The complexion is usually sallow, sometimes cachectic, and the little patients complain of great weakness, being unable to take any exercise or to indulge in former games or amusements. Occasionally hæmaturia is present. Irritability of the bladder is also an occasional symptom. As soon as the tumor has attained any considerable size, pressure symptoms with displacement of viscera attract our attention. Then we may have nausea, vomiting, constipation, œdema, dyspnœa, etc. I regard the presence of a smooth, solid, ovoidal, indistinctly fluctuant tumor on one side of the abdomen traceable to the loin, producing bulging in the flank and displacing the colon forward and to the median line, as being positive evidence of a sarcomatous growth, especially when the history only extends over a few weeks. In a few cases I have observed enlarged veins on the surface of the abdomen overlying the tumor.

Differential Diagnosis. — Sarcoma of the kidney, of course, must be differentiated from tumors of the liver, spleen, pancreas, ovaries, and from an enlarged gall-bladder; occasionally from appendicitis. A splenic tumor can be distinguished from a renal tumor by the absence of the colon in front of it and by its hard irregular border.

Prognosis. — The disease is usually fatal in from six weeks to six months, although occasionally the patients survive a year or more. The softer the tumor, the more rapidly fatal.

Treatment. — Treatment is either palliative or operative. The palliative treatment, of course, is only applicable to the inoperable cases in the middle or later stages of the disease, when from the debilitated condition

of the child, the enormous size of the tumor, the vitiated state of the blood, or the development of secondary growths elsewhere (metastatic tumors), any operative interference would be contra-indicated. Hæmorrhage will call for the employment of hæmostatic remedies, such as gallic acid and ergot: Morris speaks highly of ferric alum for this purpose. Pain, of course, will be controlled by the administration of opium. Early nephrectomy affords the only hope of a cure, and then only in the early stages of the disease.

Czerny in 1881 reported four cases of removal of the kidney for tumors in infants: one by Mr. Jessup, of Leeds, by means of the lumbar incision, in a boy two and one-half years old: one by Kocher, of Bern, in a subject about two and one-half years old: one by Hueter, in a girl four years old: and one by himself, in a girl of eleven months. Three of the patients died within a few days, as a result of the operation, one surviving eight months and dying from a recurrence of the disease. In 1885 Mr. Godlee reported a case before the London Clinical Society in which he removed a sarcoma of the right kidney, weighing about a pound, from a 22-months-old child. About the same time Mr. Heath attempted the removal of a tumor of about the same size from a little girl, but was obliged to desist on account of the extensive adhesions, the child dying soon afterwards. Hicquet reported a case of removal of a renal tumor from a six-year-old girl, by a median incision: she made a good recovery, and was well five months afterward. Botevi removed an eight-pound tumor from a child, losing his patient from septic peritonitis on the third day. Bergmann reports 16 nephrectomies, with nine deaths: one of the patients was living fourteen months after the opera-

tion, the others died or were lost track of. Gross collected 16 cases between sixteen months and seven years of age; of these nine died and seven recovered from the operation, all dying within a few months from recurrence of the disease. Gross considered nephrectomy to be positively contra-indicated in the sarcoma of children. Werner tabulated 31 operations, 16 dying from the operation, and recurrence taking place in the majority of the others. Butlin states that "not one successful case of nephrectomy for sarcoma in children can be claimed, and it is probable the operation will fall into disrepute."

Sarcomas of the kidney in children are described by Werner, in a child six months old, with a history of injury, the growth being spindle-celled sarcoma; by McCahey, in a child 3 1-2 years old, the tumor of the left kidney weighing four pounds; by King, a congenital tumor of both kidneys; by Burt, in a child eighteen months old, the tumor weighing 44 ounces. Wheaton removed a sarcoma of the right kidney from a child 5 1-2 years of age; the child did not survive the operation long. Schmidt mentions the removal of a renal sarcoma from a child six months old, followed by recovery within three weeks. J. Israel, before the Berlin Medical Society, in discussing the early diagnosis of malignant tumors of the kidney, reported the removal of the left kidney from a girl six years of age who was attacked by hæmaturia as a primary symptom; on making an exploratory nephrotomy he found a kidney not much enlarged, but showing evidences of being sarcomatous; recovery ensued. Alsberg reported a case of nephrectomy for sarcomatous tumor of the kidney in a five-year old child, diagnosed by the presence of hæmaturia

and a lumbar tumor: the child recovered from the operation, but died two or three months subsequently from recurrence. Robert Abbé reports in the *Annals of Surgery* for January, 1894, two very interesting cases of sarcoma of the kidney in children: one a sarcoma weighing 2 1-4 pounds, in a child two years old, in which nephrectomy was followed by recovery, and perfect health eighteen months afterward; the other weighing 7 1-2 pounds, in a child aged fourteen months and weighing fifteen pounds, the same operation resulting in perfect health one year later. Barth, of Marburg, collected statistics of 100 nephrectomies for malignant disease, of which 42 died from the operation, 20 died from metastasis, and 38 were cured. Of these so-called cured cases we do not know the after-history, or how many of them recovered; neither have we the ages of the patients. Sigrist collected 64 cases of nephrectomy for sarcoma, with 32 deaths from the operation: 9 went a year and a half and had recurrence; 5 went beyond two years, and one continued well for four years. McBurney reports an exceedingly interesting case of sarcoma of the kidney in a boy ten years of age, operated on at the Roosevelt Hospital, New York, April 10, 1894, with recovery but a prognosis of probable early recurrence. Dohrn, of Königsberg, reports a case of nephrectomy of the right kidney in a girl three years old; macroscopic and microscopic examination of the tumor showed it to be a small-cell sarcoma; patient remained well two months after the operation. Dohrn thinks such tumors will have to be classed, in accordance with Cohnheim's views, as teratoma, and their origin may be sought for in fetal life. Fischer tabulates 25 cases of extirpa-

tion of the kidney in children for sarcoma, with a mortality of 48 per cent.

Recent literature contains twenty-nine cases, with a mortality due to the operation of 45 per cent. I have operated in two cases: One was a male child sixteen months old, from whom I removed a tumor of the left kidney weighing seven pounds, November 25, 1893: the child is still living and well, so far as I have been able to learn. In the second case, a girl three years and eight months of age, I removed a tumor weighing two pounds which involved the right kidney; the child is entirely well at the end of three weeks and a half.

You will see, therefore, that a primary mortality of 45 or 50 per cent. from the operations on sarcomatous kidney in children implies profound shock, this in turn being probably due largely to hemorrhage. To avoid this, we use the Trendelenburg position and elevation of the tumor. To combat shock, Abbé advises a hot coffee-and-brandy enema; at the end of operation a large warm saline enema and strychnia hypodermics. In cases where a pedicle is not easily made, clamps should be applied and no ligature, leaving the clamps on for at least forty-eight hours. My uniform practice has been to apply clamps to the pedicle, cut off the tumor, and then more leisurely clean the pedicle and apply a ligature of heavy braided silk, transfixing the pedicle and tying in two sections. The ureter should be tied separately.

Butlin and Thornton take a gloomy view of operations for sarcoma of the kidney in children, and believe they are likely to fall into disrepute; while Koenig is more hopeful and believes surgery should make such advances as it can. Abbé agrees with Koenig and believes the records can be greatly improved. My own experi-

ence leads me to agree with Koenig and Abbé and to advise nephrectomy in all cases of sarcoma of the kidney, whenever the diagnosis is made, without reference to the age of the patient—provided, however, there are no operative contra-indications, such as disease of other organs, marked impairment of general health, or some other equally good reason.

Technique of the Operation.—In regard to the technique of the operation, the patient should be prepared in the usual way as for a laparotomy. My preference has been for the transperitoneal vertical incision over the most prominent part of the tumor. Tait says "the kidney is best reached by the most likely looking road;" while Abbé advises to always cross-cut, his preference being for the transverse incision very near the spine, parallel to and an inch below the last rib, and continued as far as need be toward the median line, crossing the rectus abdominis if the tumor be large. Through such incision any renal tumor can be handled and ample room obtained. The peritoneum will not be opened unless the tumor be large, and then it is better so.

Four cases of sarcoma of the kidney in children have fallen under my personal observation, in two of which operation was declined.

CASE I. Annie C——, aged four years, was seen by me first in September, 1880, at which time she was suffering from a large tumor filling up the whole right side of the abdomen. The tumor was smooth, uniform in outline, and produced marked dyspnoea from its size. The little patient had rapidly emaciated, was extremely sallow and cachectic in appearance, and had suffered severely from hæmaturia. The late Dr. W. H. Byford saw her in consultation with me, and made a diagnosis of

medullary sarcoma of the kidney, but advised against operation on account of the advanced stage of the growth. She had been ill some two or three months when she came under my care. She died about three weeks subsequently from exhaustion. No post-mortem was permitted.

CASE II. Mary L. C——, aged thirteen months, was brought to my office in June, 1889, with a large abdominal tumor, perfectly dull on percussion, and extending down to the right loin. The child had been ill only two or three weeks, with symptoms of indigestion and rapid loss of weight, when the mother noticed the prominence of the abdomen. After careful examination I made a diagnosis of sarcoma of the left kidney, and suggested an operation for its removal. Dr. Christian Fenger saw the case in consultation with me a week or ten days subsequently, when the child was very much weaker, more exhausted, and presented a decidedly cachectic appearance. He coincided with the diagnosis of retro-peritoneal sarcoma, but advised against operative interference on account of the child's weak condition. The child died a few days subsequently; no autopsy was permitted.

CASE III. Martin F——, sixteen months old, of Bohemian parents, was brought to my surgical clinic in the College of Physicians and Surgeons in November, 1893. He offered nothing in his family history which showed a predisposition to any disease; on the contrary, he gave a history of good health and long-lived families in all the branches of his genealogical tree. His father, mother, grandparents, and two sisters aged four and thirteen respectively, were living and well. The patient himself had had a natural birth, and enjoyed the best of health up to the onset of

the present illness, when there were noticed pressure symptoms and a very rapidly growing abdominal tumor. He fell out of bed and was tipped out of a baby-carriage about four months previously, without sustaining any apparent injury at the time. About ten weeks before I saw him the mother noticed in the left hypochondriac region a swelling the size of a small orange, which grew rapidly and regularly up to the middle of November, when I first saw him. With the assistance of Dr. T. A. Davis I did a left lateral laparonephrectomy, November 25th. At the time of the operation the child appeared to be well developed, rather large for his age, quite fleshy, and with every appearance of health excepting an enormously distended abdomen which seemed to be particularly bulging toward the left. Palpation showed firmness over this region, and we could readily outline the large smooth surface of a tumor, irregularly ovoidal in shape, filling the entire left side of the abdominal cavity and extending quite across to the median line. It was uniformly dull on percussion, freely movable, evidently encapsulated, and apparently not very firmly adherent. It had displaced the abdominal viscera, the colon resonance being advanced to the right of the median line. Pulse and respiration were somewhat accelerated, but this was probably due, to some extent at least, to the influence of fear. Examination of the urine showed nothing abnormal. A diagnosis of sarcoma of the left kidney was made, and a nephrectomy advised and carried into execution. Chloroform was the anæsthetic used, and the usual preparatory laparotomy toilet was made, the abdomen being scrubbed with soap and water, then with ether, finally with alcohol, then douched with a weak solution of

bichloride of mercury. The patient was placed in the dorsol decubitus with the head low, hips well elevated, the body inclined toward the right side, which position was maintained throughout the operation, as by elevation of the tumor we hoped to somewhat lessen the amount of blood contained therein. I then made a curvilinear lateral abdominal incision from the last rib, over the apex of the tumor to near the symphysis pubis, with the convexity to the left. Abdominal wall was very much attenuated from stretching and pressure atrophy, so that the whole length of incision brought us down at once upon the tumor without any extensive opening into the peritoneal cavity. This was due to the adhesion of reflected peritoneal surfaces which were displaced by the ongrowth of the tumor, or else to the stripping of the parietal peritoneum from the same cause. The tumor presented a smooth, regular surface over which ramified several large veins. There were a few adhesions of the para-renal areolar tissue, which were cut between Billroth forceps and the vessels ligated. The descending colon was displaced to the median abdominal region, where the para-areolar attachments were quite firmly adherent to the tumor; these latter were divided and ligated in the same way, when the tumor shelled out quite readily, and while it was being held up the pedicle was secured with long heavy forceps, and the tumor removed by cutting the pedicle—which was subsequently ligated at two points by transfixing with a needle armed with heavy silk, and the pedicle trimmed short.

There was an exceedingly small amount of blood lost—probably not an ounce—and the patient suffered but little shock from the operation, which lasted about thirty minutes.

The wound was flushed with sterilized water, and closed with interrupted silkworm-gut sutures. In the upper and lower angles of the wound I brought out a three-inch strip of sterilized iodoform gauze which rested against the pedicle stump, and closed the peritoneal surface. Over this a regular antiseptic dressing was applied, the wound dusted with boracic acid, covered with three thicknesses of iodoform gauze, over this ten layers of bichloride gauze and a roll of salicylated cotton, the whole being firmly secured by a roller bandage carried around the body.

The subsequent history of the case is that of uneventful convalescence. The dressing was changed about the fourth day, at which time the packing was removed. Two days later the stitches were removed and the child sent home recovered. Three months ago, since which time I have not heard directly from the case, the child was in good health and there were no signs of any recurrence of the disease.

The tumor weighed seven pounds, or one-third the weight of the child at the time of operation. It is somewhat irregular in its outline, but preserves a uniformly globular form. The sulcus in the upper part corresponds to the encroachment of the upper third of the kidney and the exit of the blood-vessels and ureter which have been displaced by the large growth. From appearances it would seem that the tumor originated in the lower third of the kidney, elevating the blood-vessels and ureter as it grew, and by compression and invasion of the remaining portion of the kidney gradually transforming the latter into fatty and tumor tissue respectively.

On section the tumor presents a rather uniform appearance and consistency. The upper part corres-

ponds to the small portion of the kidney cortex; is softer from fatty degeneration following the extinction of its function from compression of the blood-vessels and ureter. The remaining extensive portion is firm and rather dense in consistency. It presents a few rings of connective tissue which encapsulated the different portions of the growth at different times during its development. They are made up, quite likely, of kidney capsule and para-areolar tissue.

Microscopic examination shows the tumor to be composed of small round cells, some of which are pigmented, giving it the character of melanosarcoma. Therefore, microscopically and pathologically we may classify it as a melano-lipo-sarcoma of the kidney.

Case 4.—Virginia D—, aged three years and eight months, was brought to my clinic at the College, January 25, with the following history: She had been perfectly well up to nine days prior to this time, when, during play, she suddenly complained of pain in the right side of the abdomen, followed by nausea, vomiting, and obstinate constipation. She was more or less restless and feverish. A physician was called in, who, finding the clinical symptoms of sudden occurrence of pain in the right iliac region, nausea, vomiting, constipation, distention of the abdomen, and on examination finding a tumor in the right side of the abdomen, diagnosed appendicitis, advised operation, and sent the child to the Women's and Children's Hospital, where she remained under observation for two or three days without definite diagnosis having been arrived at: she was then brought to my clinic for further examination and possible operation. There was no history of any injury or previous ill health, although, on close questioning, her mother thought

there might have been slight enlargement of the abdomen for about six weeks before she complained of the sudden pain and urgent symptoms. When I first examined her she presented the appearance of a fairly healthy child, slightly cachectic. In the right side of the abdomen was a smooth, ovoidal, distinctly fluctuant tumor, extending downwards and backwards in the loin, where it seemed to originate. The ascending colon was displaced forward to the median line; a few enlarged veins were noticed on the surface of the abdomen overlying the tumor. The tumor was dull on percussion, quite freely movable, apparently encapsulated, and on palpation gave evidence of fluctuation. Examination of the urine was negative.

A diagnosis of sarcoma of the right kidney was made and a nephrectomy advised. Chloroform was administered, and Langenbeck's vertical transperitoneal incision made over the most prominent point of the tumor, about an inch and a half from the outer border of the right rectus, the patient's body being well elevated and inclined toward the left side. The abdominal wall was thinned from pressure atrophy, and we immediately came down upon a tumor, which presented a smooth regular surface, to which the ascending colon was intimately adherent: also several points of omental attachment. With the finger the tumor was readily enucleated. When very near its anterior and lower border, what seemed to be a dense fibrous cord prevented its being lifted from its bed. Upon clamping and dividing between forceps, this firm band was found to be the ureter. Several smaller bands of adhesion between intestine and surface of tumor were ligated and divided, and the tumor was readily brought through the incision, pedicle clamped with for

ceps and tumor cut away. The divided ureter was cauterized with 95 per cent. carbolic acid, ligated with fine silk, and dropped into the abdominal cavity. The pedicle of the tumor, containing the renal vessels, after being freed from the adipose tissue, was secured by a double silk ligature, cut short and dropped into the abdominal cavity. The cavity occupied by the tumor was packed with strips of iodoform gauze, the ends of which were brought out at the upper angle of the wound. There was scarcely any hemorrhage, the patient suffered but little shock, and the operation lasted twenty-five minutes. The wound was flushed with sterilized water and closed with interrupted silk sutures. Over this the usual antiseptic dressing was applied.

Patient reacted well: the tension upon the stitches was so great that two or three of them partially cut out and some infection took place along the stitch wound, but notwithstanding this slight infection she made an uninterrupted recovery. Her bowels moved regularly, she urinated without the necessity of a catheter, and her appetite was good.

Microscopical examination of the tumor was made, showing it to be a small spindle-cell sarcoma. The tumor, which presents an irregularly ovoidal form, seems to have originated from the upper and posterior portion of the kidney, just within the capsule, and as it extended downward and backward pushed the kidney forward toward the median line, and as it encroached still further by pressure compressed the ureter, destroying the functional activity of the kidney so that the remaining portion of that organ was rapidly transformed into fatty and sarcomatous tissue of rapid growth which gave the apparent fluctuation under palpation.

I am indebted to Dr. M. L. Good-

kind for notes of the following case which occurred in the practice of Dr. Frank Cary:

A child, male, two and one-half years of age, American parentage. Absolutely no syphilitic or tubercular history: no history of new growths in the family. In May, 1892, there began to develop tumefaction of the right side, which increased to such an alarming extent that the parents, who had been having faith cures and Christian scientists, decided finally to call in a regular physician. Dr. Cary was called. He at that time found enlargement in the right lumbar region extending toward the anterior abdominal wall: this enlargement did not seem to be painful on palpation, but was slightly indurated and extremely hard. He examined the urine carefully, and found no abnormal constituent. The child was well developed, well nourished, but began to emaciate rapidly. There was no gastric, intestinal, or urinary disturbance. The tumor began to increase in size, and grew until the abdomen became enormously distended, veins enlarged, and about the umbilicus an inflammatory area developed. This condition continued until March, 1893, when the child, growing rapidly weaker and weaker, died.

Post-mortem examination revealed medullary sarcoma of the right kidney the size of a child's head. Very little of the kidney substance was to be recognized. The growth was adherent to the liver and to the mesenteric attachment of the intestine. The mesenteric glands and the retroperitoneal glands were intensely infiltrated. The heart muscle contained a sarcomatous deposit. The calvarium was not opened, on account of the objection of the parents.

Medication in this case consisted of syrup of iodide of iron, etc.

Conclusions.

From the literature of this subject I think we may fairly deduce the following conclusions:

1. These new growths of the child's kidney are often congenital.

2. They are usually unilateral; when bilateral it is from secondary infection of the other kidney.

3. They are primarily extra-renal, and surround rather than infiltrate the renal tissue.

4. Round-celled is the most common form of these sarcomas.

5. They are of exceedingly rapid growth, and destroy life by exhaustion.

6. They are uniformly fatal when treated medically, the duration of life being from four to twelve months from the time the disease is first observed.

7. Nephrectomy offers the only hope of cure or prolonging life in these unfortunate cases.

8. More accurate early diagnosis and prompt operative interference has lowered and will continue to lower both the primary and secondary mortality.

9. The extra-peritoneal route is preferable when the tumor is small.

10. When large, a trans-peritoneal incision is imperative.

11. It may be either transverse or vertical; considering the nerve supply of the parts, the transverse would seem better.

12. The operation of nephrectomy in these cases is justifiable, and we are not doing our duty as surgeons to our little patients if we withhold the only chance they have for life.—*Medicine, April, 1895.*

MEASLES.

Measles in young infants may be followed by troublesome pulmonary

symptoms and severe inflammation of the eyes. In a recent case with the above complications, Dr. Wells found the fluid extract of eucalyptus, in five-drop doses, to give relief from distressing cough. For the eyes, solution of mercuric chlorid (1:12000) was used, a drop or two being instilled twice daily, and followed by a washing with solution of borax in warm water.—*Philadelphia Polyclinic.*

CROUP.

Use pilocarpine as a specific in all cases in which the mucous membrane becomes covered with a transudate apt to coagulate. The abundant secretion of mucous produced by the pilocarpine tends to loosen the fibrinous exudate adherent to the membrane, and it is readily expelled from the larynx. The pilocarpine not only assists in dissolving and removing the membrane present, but also tends to prevent its re-forming. It can be administered to children from one to three years of age in doses of 0.01 to 0.03 gm.; three to six years of age, 0.03 to 0.04 gm.; six to ten years of age, 0.05 gm.; ten to fifteen years of age, 0.06 to 0.07 gm.; adults 0.07 to 0.1 gm.—*Sziklai.*

STERILIZATION OF MILK.

In the December number of *Popular Science News*, Prof. Henry E. Chapin, M. Sc., writes: One of the great sources of infection is milk. Recognizing this fact, and that young children are wholly dependent upon this food, bacteriologists have been able to give to the world a practical method of sterilization, by means of which the milk will be rendered absolutely germ-free, thus saving the lives of thousands of infants yearly. A practical method, however, of securing this result was not hit upon in an

instant. When it was first suggested in Germany that all milk be sterilized, physicians readily responded, for it was recognized that the diseases of children would thereby yield more readily to treatment. But it does not follow that milk thus sterilized should constitute the only food, for experience in a Philadelphia hospital has shown that where this was practiced a large percentage of the children died; that the weakly children could not thrive upon it. Milk, as it leaves the cow, is already nearly "digested," and intense heat melts the fats and destroys emulsion: it turns the milk sugar into a caramel; it destroys the starch ferment (infant's saliva containing no ptyalin); the casein will not curdle, and the albumen is coagulable. Milk thus treated, then, is unfit for a steady diet. But the bacteriologist is equal to the emergency, and has succeeded in showing that Pasteurizing renders the milk perfectly effective, and at the same time absolutely harmless. This is based upon the discovery that it is not necessary to bring the milk to the boiling point to destroy the pathogenic organisms, a temperature of 70° C. (158° F.) being sufficient. Thus it is possible to thoroughly sterilize all the food of young children, and at the same time retain the essential properties of that food. The milk should, however, be used soon after sterilization. Not only are the bacteriologists thus able to guard the children against disease communicated by milk, but the general milk supply has been very carefully studied and precautions advocated, which, if followed, will insure a markedly decreased death list. There appears good reason for declaring that milk acts as a carrier for at least five diseases, viz.: tuberculosis, typhoid fever, scarlet fever, diphtheria and cholera infantum.

SÉRUM-THERAPY AND DIPHTHERIA ANTITOXIN.

The *Medical News* of Nov. 21 says: While a great deal has been said of late about the effect of injections of diphtheria-antitoxin, comparatively little study and attention have been bestowed upon the effect of the serum itself when injected to a human being. It is rather strange that so many physicians should have taken it for granted that the serum is inert. If this assumption proves to be without foundation, then we have another and important disturbing factor introduced into the already complex problem of determining the real practical value of the diphtheria-antitoxin treatment.

At a recent meeting of the New York Academy of Medicine an attempt was made to clear up this part of the subject. Dr. Henry Dwight Chapin detailed a series of experiments that he had made on animals with a view of determining the effect, if any, of injections of serum obtained from healthy horses. These experiments prove in a general way that the injection of the horse serum produces a moderate reduction in the number of red blood-globules, and causes congestion of the spleen, congestion and cloudy swelling of the kidneys, and sometimes areas of fatty degeneration. Most of the experiments were performed upon rabbits. These results indicate that it is no longer wise to look upon the serum as an inert and harmless substance, and suggest that greater caution should be observed in adopting this treatment. Several observers have noted that the transfusion of the blood of the lower animals into the human subject is followed by a temporary rise of the temperature and an acceleration and weakening of the heart's action, and that in addition to a marked destruction of the red

blood-cells there have been pathologic changes observed in the kidneys and hemopoietic system. An erythema, similar to that so commonly seen after the administration of the diphtheria-antitoxin, has been known to follow the injection of the plain serum from a healthy horse. There can be no doubt, however, that the trend of scientific opinion among those best fitted to judge is that the treatment of diphtheria with the antitoxin has tremendously lessened the average rate of mortality. Despite all adverse facts, that appears to be beyond dispute.

HYPERTROPHIC CIRRHOSIS WITH ICTERUS IN CHILDREN.

A. Gilbert and L. Fournier (*Sem. méd.*, 1895,) have recently observed seven children, four boys and three girls, with hypertrophic cirrhosis and icterus. The first symptoms appeared at the ages of five, nine, eleven, twelve (four cases), and seventeen years. These patients presented certain interesting peculiarities. In the first place, the spleen is usually of considerable size; its vertical diameter may reach twenty-six to thirty centimeters. These large measurements, of course, vary with the size of the patient. In some instances the development of the liver remains so much behind that of the spleen that one might readily be led to believe that they had to deal with a primitive splenopathy.

In the second place, it is not at all infrequent to find the last phalanx of the fingers noticeably hypertrophied: the nail at the same time becomes deformed, incurved, and altered in structure. Moreover, the extremities of the tibia, fibula, and femur increase appreciably in size, and a small quantity of fluid appears within the synovial sacs of the knees, and there is

pain in the different articulations, even in those which show no changes. The authors at first thought that these osteo-arthropic troubles could be referred to the interference with the movement of the diaphragm, resulting from the hypertrophy of the abdominal organs and the consequent restriction of the respiratory field; but having observed the same phenomena in a case in which liver and spleen were but slightly enlarged; they were forced to abandon this explanation.

Finally, hypertrophic cirrhosis with icterus interferes with the growth of the children whose height and weight remain below the normal average. The limbs are thin and the muscles poorly developed. The children appear younger than they really are. When they reach the age of puberty this is indefinitely postponed or completely absent.

RECENT STUDIES ON DIPHTHERIA AND PSEUDO-DIPHTHERIA.

Dr. W. H. Park, in a paper read before the New York State Medical Association, October, 1895, says: In the table constructed by Dr. W. H. Welch, it was found that in 5,777 cases of diphtheria treated with antitoxin in hospitals, there was a mortality of but 18.7 per cent. These same hospitals gave an average mortality of 43.6 per cent. during the years preceding the use of antitoxin. This, he said, was too great a difference to explain by any remarkable lessening of the virulence of diphtheria all over Europe, at the very moment of commencing the use of antitoxin, nor could it be explained on the supposition that many more cases was sent to the hospital than formerly. In private practice, Dr. Welch summarized 663 cases with a death-rate of only 6.6 per cent.

It was interesting to note the effect of antitoxin in laryngeal diphtheria. With hardly an exception the statistics showed that a less proportion of laryngeal cases came to operative relief now than before the use of antitoxin. The mortality in cases coming to operation was also reduced in all hospitals. In 1,016 cases there was a mortality of less than thirty-eight per cent., as contrasted with the average mortality before the use of antitoxin, of over seventy per cent.

In New York city the mortality statistics were very interesting. The average mortality for the past four years for all cases reported had been over thirty-four per cent. During the past nine months the mortality had been only seventeen per cent.

Dr. Park believed that if antitoxin had been used in all cases the mortality would not have been more than ten per cent. In Willard Parker Hospital the mortality had been reduced one-third, and, lately, one-half. Regarding the ill effects, in some the injection caused a slight temporary rise in temperature. In about ten per cent. a local or general urticaria or other form of rash made its appearance between the fifth and twentieth days, and lasted twelve to forty-eight hours. In a few this was accompanied by a rise of temperature. In about one per cent. of the cases with this rash one or more joints became tender; the temperature might be considerably elevated. As a rule these symptoms subsided within forty-eight hours, but in a few there was swelling of the joints some weeks or even for months, as in one case. In a small per cent. albumin appeared in the urine, but with this there was no other symptoms showing any deleterious effects on the kidney's. He had seen at the hospital during the past nine months no serious effects upon the heart, kidney, or nervous

system which seemed attributable to the antitoxin. Those who had read Dr. J. E. Winter's remarks might wonder at this, but as a matter of fact he had not seen, after careful observation, the evil effects mentioned by him.

Regarding the use of diphtheria antitoxin in preventing, by immunization, the development of diphtheria, he referred to its use in four asylums in the city, where outbreaks of diphtheria had occurred, the entire number of inmates being over six hundred. In every instance after commencing the injections no further cases of diphtheria developed. The following is an example:

At the Reception House of the Juvenile Asylum four cases of diphtheria developed during the week ending April 11th. On the 12th the children (about seventy) were injected with from 200 to 400 units. No cases occurred afterward except that an attendant and an engineer who handled the clothes from the diphtheria children, and who had not received immunizing injections, developed diphtheria.

Dr. Park said to him these results seemed conclusive as to the immunizing power of injections of from 100 to 400 units of antitoxin. About one sixth of the children developed albuminuria, and a much smaller percentage developed it to a greater extent. In none, however, were there any other symptoms pointing to any deleterious action on the kidneys, and in none was the albuminuria more than transitory. On the blood there was noticed a slight temporary diminution in the number of the red blood cells. No other changes were noticed.—*Medical Record*.

EMPHYEMA IN CHILDREN.

1. When pus is found to be pres-

ent in the pleural cavity, the proper treatment is to remove it. 2. The best method is simple incision and drainage. 3. The best site for the operation is the fifth space in the mid-axillary line. 4. Irrigation is unadvisable, and is indicated only in cases of fetid effusion. 5. Exploration and scraping of the cavity are not necessary. 6. Resection of the rib is practically never necessary in children as a primary procedure to procure efficient drainage, but may be required to secure the closure of the sinus, subsequently, by allowing the chest wall to fall in. 7. Collapse of the chest wall is not a result to be desired in the early stages of the treatment. 8. Rapid and complete expansion of the lung is the great object of treatment. 9. The tube must be removed early.—*Cant-ler: Medical Record.*

PSORIASIS IN INFANTS.

Rille at the Imperial Medical Society of Vienna presented a 38-day old child affected with psoriasis. The disease had appeared some days after birth and had covered the greater part of the body. It was noted that Kaposi had seen the disease in a child eight months old, Neumann a case in a child four months, and Hebra had observed two children less than a year old so affected.

THE KONIG-MASS METHOD OF RESTORING PERSONS APPARENTLY DEAD FROM CHLOROFORM.

The operator standing on the left side of the patient and facing him, places the ball of the thumb of the opened right hand upon the patient's chest, at a point between the apex beat and the sternum. He then repeatedly presses in the thoracic wall with a quick, strong movement, at

the rate of thirty to one hundred and twenty times to the minute.

There can be no doubt that the efficacy of the König-Maas method lies in its direct action on the heart, restoring not the respiration only, but the circulation also. If on a fresh cadaver the precordium be quickly and forcibly compressed, it is easy to detect a distinct pulse wave in the carotid arteries; and the pupils will be found to contract as the blood fills the capillaries of the iris.—*Leedham Green, Birmingham, Med. Rev., 1895, xxxvii, 84.*

THE CUTANEOUS IRRITATION OF MEASLES, ETC.

Balsam of Peru is a useful addition to many ointments, both on account of its pleasant odor and because it is in itself a valuable non-irritating antiseptic. When added to vaseline it is much more readily mixed if a few drops of alcohol or castor oil are added. The following may be recommended to allay the cutaneous irritation of measles, chicken-pox, etc.:—

R Lanolini puris ʒj.
Vasellini ʒiij.
Olei Ricini miiij.
Aque Destill. ʒv.

Ft. ung.—S. Apply as required.

Preparations of vaseline or paroline can have a pleasant odor given to them by the addition of a few drops of oil of wintergreen.—*Practitioner, 1895, liv, 190.*

METHOD OF PREPARING BONE MARROW FOR THE TREATMENT OF PERNICIOUS ANEMIA.

Three ounces of fresh bone marrow (as much red as possible) are made up into a paste with port wine, one ounce; glycerine, one ounce; gelatine, five drachms. A little care is

required in making the paste, to keep the gelatine and the marrow sufficiently fluid for them to be thoroughly mixed. The gelatine should be soaked in sufficient water to soften it, and then should be melted with the glycerine, the mixture being kept in a mortar previously made hot with boiling water, while in another mortar, made hot in a similar manner, the marrow and wine are mixed. Then the contents of the two mortars should be thoroughly incorporated and allowed to set. The hospital butcher seems to have no difficulty in supplying the marrow free from bone spicules. — *Alfred G. Barrs, Brit. Med. Jour., London, 1895, i, 358.*

SODIUM FLUORIDE IN INFANTILE TUBERCULOSIS.

Dr. Bourgois (*Bull. de l'Acad. roy. de Med. de Belg.* Vol. xi) concludes that: 1. Purified sodium fluoride has a marked action upon children, whether they have only a tuberculous diathesis or are already tuberculous, and the good results are enduring; 2, the dose is from one-tenth milligrammes to five milligrammes (1-650 grm. to 1-13 grm.) a day; 3, when the specific effects of the remedy manifest themselves the dose is to be lowered; 4, children take the drug very well, and hardly ever show any intolerance. — *Am. Med. Surg. Bull., 1895, viii, 553.*

PILOCARPINE FOR ACUTE NEPHRITIS IN CHILDREN.

G. W. Lueck recommends absolute rest in bed: the administration of pilocarpine (1-20 to 1-30 grain every three or four hours); the free drinking of cream of tartar lemonade; poultices over the region of the kidneys; and supporting the action

of the heart by proper remedies. — *Therapeutic Gaz., 1895, xviii, 733.*

PURULENT OPHTHALMIA:

R Hydrastis sulphatis,
Acidi borici,
Sodii biboratis aa gr. v.
Tr. opii dedor, 3 ss.
Aque dest, 3 j.
To be used as a collyrium from the beginning. — *Scott.*

INCONTINENCE OF URINE:

R Tincture belladonnæ,
Tincture cubebæ, aa f 3 ij.
Tincture nucis vomicæ,
Tincture rhei aromaticæ, aa f 3 j.
Tincture cascariæ, f 3 ij.
Twelve drops at bedtime for a child from seven to ten years.

CHRONIC PHARYNGITIS:

R Iodi, gr. vi.
Potassii iodidi, gr. xij.
Mentholis,
Glycerini, q. s. ad., aa 3 j.
M. Apply with a camel's-hair brush twice or thrice daily.

HERPES ZOSTER:

R Boric acid gr. 1.
Glycerine, q. s., vaseline, grs. 30
Cocaine hydrochlorate,
Extract of opium, aa ctgr. 30
M. The neuralgia following the eruption is best treated by Fowler's solution. — *Kaposi.*

DIARRHŒA IN INFANTS:

R Benzonaphthol.
Bismuth subnitrat.
Resorcin. aa gr. jss.
M. Sig.: For a child one or two years of age one such powder every two hours until six have been taken. — *Edwald.*

FETID DIARRHŒA:

R Calomel, 10 etgr.
Sulpho carbonate of zinc. 15 etgr.
Subnitrate of bismuth. 8 gm.
Pepsin 2 gm.
M. Sig.: Sufficient for twelve powders. Three per diem in a child of one year. — *Tompkins.*

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ORIGINAL COMMUNICATIONS.

A Case of Intestinal Obstruction of Doubtful Origin.

FRITZ MAASS, M.D.

As intestinal obstruction can be caused by ovarian tumors or pelvic adhesions, it may not be out of place to bring this subject before a gynæcological society. The gynæcologist, as well as the general surgeon, knows how difficult the diagnosis of abdominal obstruction, concerning the cause of it, may be. In this regard the following case is very instructive.

The patient, male, forty years of age, had always been in good health. The last years he is said to have been drinking occasionally very hard. His present illness began about eight days before I saw him, with sudden pain in the abdomen and diarrhœa, which changed very soon to absolute obstruction. On account of this latter symptom he had been treated for three days with strong cathartics, without any effect. During all this time the patient never vomited or

suffered from nausea. If there had been any fever it could not be ascertained.

When I saw the patient, in consultation, early in the morning on August 31, 1895, his abdomen was enormously distended. Lying on his back, both sides of the abdomen were dull and the middle part of it tympanitic; standing on his feet, the dullness was found in the lower part of the belly, reaching as high as the navel. The tongue was coated, but not dry; temperature was normal; pulse was 120 and weak; respiration very difficult and frequent; complexion showed great anxiety; eyes not sunken. The patient was able to stand on his feet and walk through the room. No local tenderness or resistance about the abdomen.

What could be the cause of the obstruction? General peritonitis,

which filled half the abdomen with fluid, lasted eight days, distended the belly to the utmost, and did not dry the tongue nor render the eyes sunken, and the abdomen very painful; yet left so much strength to the patient that he was able to walk a few steps? Mechanical occlusion of the lesser bowel without nausea and vomiting? A simple coprostasis, which did not yield to the strongest cathartics for three days, and filled the abdominal cavity with fluid? Not one of these three possibilities could be spoken of seriously. If there was a mechanical occlusion at all, it only could be situated far away from the stomach: perhaps volvulus of the sigmoid flexor; but even under these circumstances the absence of vomiting after the use of drastics was very strange. The lack of every reaction of the intestines, after a short period of diarrhoea in the beginning, certainly may be better understood if there was absolute paralysis of the bowels. This diagnosis being the most probable one, an operation was not very hopeful. The relations of the patient, and the patient himself, decided for operation after having been told that there was some hope in it.

I performed laparotomy one hour later in Harper hospital. After the abdomen was opened in the median line, dark, blue-colored and distended coils of the small intestine poured out, together with a cloudy, reddish-looking fluid. In the lower angle of the incision a coil of the large intestine became visible, distended, but of

normal color and without any signs of peritonitis. Whether there was a mechanical obstruction or not could not be seen on account of the distension. For this reason, and because of the impossibility to put the distended coils back into the abdominal cavity, it was necessary to open and empty them. Besides not very offensive gas, they contained a large quantity of yellowish fluid. Two openings were sufficient to relieve the intestine of its contents. After the coils were collapsed and the incisions closed, the digestive tract was examined, but no mechanical obstruction could be found. The large intestine, the stomach, and the small intestine, the parts near the stomach and the cecum, looked entirely normal. There was not a sharp line between the healthy and diseased coils, as in case of strangulation, or any sign of necrosis from pressure. The boundary was irregular; and near it, in the healthy part of the coils, entirely separated from the continuously diseased tract, were found some blue-colored spots. Concerning the color of the diseased coils, I may add that it looked the same as we see in strangulated hernia—dark blue, not red, as in peritonitis. The fluid in the abdominal cavity was sponged out without any irrigating, and the wound closed.

After the patient came out of the influence of chloroform he felt a little better, mainly on account of easier breathing. The pulse, at first about the same as before operation, later became more and more frequent. The patient was entirely conscious

during the afternoon and felt that he was going to die. The abdomen did not become distended again. In about eight or nine hours death followed operation.

Post-mortem : The intestine showed the same color as during operation. The stomach, duodenum, one-eighth of the small intestine near to it, the large intestine and one-eighth of the small intestine near to it, were normal. The middle part of the small intestine, about six-eighths of the whole organ, was dark blue and very much softened. The boundaries, as described above, were irregular. No traces of mechanical obstruction. The mucous membrane of the diseased bowel showing the same color, and without ulceration or diphtheritic membrane. In the vessels of the mesentery there was found nothing abnormal—a statement that I will not maintain as a doubtless one, for the post-mortem had to be made in a great hurry and in a badly lighted room. The bladder contained about a quarter of an ounce of urine, which was saved for examination. The chest could not be examined.

In the specimen of urine I found one-eighth per cent. by volume of albumen and few hyalin casts.

The fluid from the abdominal cavity contained many pus corpuscles and red blood cells, the latter very likely from the abdominal wound.

The sections made from the diseased part of the intestine showed under the microscope in its distal layers extensive blood extravasation. The mucous membrane was in its greater

part without epithelium. Between the mucous membrane and the muscular layer accumulations of pus corpuscles were found.

Now, after laparotomy, post-mortem and microscopical examination, which diagnosis is the most acceptable one? How can only the central coils of the small intestine be so badly destroyed, when those above and below, as well as the stomach and the large intestine are entirely healthy.

Such pathological conditions may be produced first by torsion of nearly the entire mesentery. It is not impossible that those conditions existed without being noticed during operation, as the enormously distended coils protected it from sight, and rushing out of the abdominal cavity effected replacement. But an obstruction so near to the stomach, should it not have elicited vomiting as one of the first symptoms?

If it is not a valvulus, perhaps embolism of the superior mesenteric artery may explain the case. Sudden occlusion of this artery causes blood extravasation into the walls of the intestine by engorgement and diapedesis, and also bloody discharge into the intestinal canal and the abdominal cavity. The main symptoms of this disease are sudden pain in the abdomen and bloody diarrhœa. Our patient was taken down with sudden pain and diarrhœa. Whether his stools contained blood or not has not been observed. An obstruction of the before mentioned artery, after the first branches depart from the main

trunk, is able to stop the aretrial circulation in the very part of the small intestine diseased in this case. The fluid in the abdominal cavity contained blood, which perhaps, may not have originated from the abdominal wound, as has been supposed above. That no embolus was found during the post-mortem was due perhaps to the circumstances unfavorable to such an investigation. But there is one strong point speaking against this diagnosis, namely, that the contents of the intestines were not blood-stained at all. And now the third possibility: An inflammation beginning in the mucous membrane, caused by bacteria or some chemical poison, and spreading over the entire layers of the intestine. Certainly it is somewhat strange that this supposed poison, organized or not, did not affect the upper and the lower part of the digestive tract. The mucous membrane of the stomach was perhaps protected by the acidity of its juice, and the duodenum and upper small intestine by the gall. The paralysed part of the small intestine retained the destroying agent, so saving the lower part. Conceded this, the diarrhœa in the beginning of the illness cannot have emptied the small intestine, but only the colon: and the irritation of this organ has been caused instead—directly by the poison, indirectly by reflex. Or, when the poison reached these parts, too, it was diluted and weakened by secretions coming from above. You see that this third diagnosis needs more prop-ositions, which are not proved, than

the other two. In spite of this, it is perhaps the best founded one. Accumulation of pus corpuscles can be understood more easily when there is an inflammation of an organ well supplied with blood, than it can be in one where the flow of blood is checked either by embolism or by torsion.

It remains to criticise the line of treatment which has been followed in this case. Before I do so, I might recall briefly the course of the disease under its influence. Sudden abdominal pain and diarrhœa, followed by a stage without any movements at all and without vomiting; if fever was present or not is doubtful: unsuccessful administration of cathartics for three days. No vomiting even after this: enormous distension, free fluid in the peritoneal cavity, frequent pulse, difficult breathing, laparotomy on the eighth day, death nine hours after operation.

First. Was it the proper thing to prescribe and continue cathartics? After laparotomy and post-mortem have revealed the complete paralysis and beginning necrosis of nearly the entire small intestine, it is beyond doubt that those remedies could not be of any advantage to the patient. But without this knowledge the attending physician was justified in trying them cautiously. As the distension became an alarming symptom, he stopped this treatment and called for consultation.

Whether the drastics aggravated the case, by multiplying the inflammatory agents and accumulating their destroying effect on the para-

lysed intestine, or not, can only remain an undecided question.

Secondly, Was laparotomy a justifiable measure in this case? As the result of it was an unsuccessful one, we may say it was certainly too late. On the other hand, is it the proper standpoint in such hopeless looking cases to refuse the operation absolutely? Taking into consideration the symptoms the patient showed on the eighth day, when I saw him first, it clearly could be seen that he was going to die by continuing the expectant treatment. No movements, great distension, free fluid in the abdomen, rapid pulse, most difficult breathing. Far advanced cases, both of mechanical obstruction and of general peritonitis, sometimes have been saved by laparotomy. As the pulse was strong enough, probably, to enable the patient to survive the operation it seemed worth being tried.

Thirdly, Would it do any good to the patient to open the intestine? That this measure was necessary for closing the abdominal cavity has been said above. But it is not the only point in justifying the proceeding. The contents of the intestine may have been the first cause of the

disease or not; certainly the chances for recovery were better after relieving the distended coils from gas and from the fluid, out of which gas would form again, and not only gas, but also the fluid-poisoning products of decomposition.

The question whether the laparotomy may hasten the end of the patient or not, must be taken into consideration too, though it is not of practical value to him to struggle a few hours longer. If the operation had an aggravating influence it was not a very marked one. He awoke completely from the narcosis and had not so much difficulty in breathing as before. But the pulse became more and more rapid. As the patient became conscious entirely, very likely this condition of the pulse was the effect of the poison taken into his system from the abdominal cavity, filled with products of decomposition, and not of chloroform and manipulating in the abdomen.

Though the final result is not in favor of the different measures taken, the strange symptoms the patient showed may partly excuse, partly justify them.

On Primary Malignant Tumors of the Clitoris.

A CLINICAL LECTURE DELIVERED AT THE TREMONT DISPENSARY

BY CHARLES GREENE CUMSTON, B.M.S., M.D.,

Instructor in Clinical Gynecology, Tufts' College; Member of the Société Française d'Electrothérapie; Director of the Gynecological Clinic, Tremont Dispensary, etc.

GENTLEMEN: — I propose to-day to discuss particularly the question of primary cancer of the clitoris, and I trust that my efforts may be successful. This subject is one that should be known to you, as this affection is met with, though infrequently, as a primary lesion of the clitoris, and it is well to be on your guard.

All the ordinary causes of cancer in general may be applied to epithelioma of the clitoris. Danriac, in his studies, came to the conclusion that this neoplasm appears rather after the menopause, between the age of forty and sixty. He reports one case in which the affection appeared at seventy, and another at seventy-six, while Lafleur mentions a case of melanotic sarcoma of the clitoris in a woman of eighty.

However, childhood is not exempt, and as a proof of this I would mention a case reported by Dr. de Saint-Germain, of a sarcoma of the clitoris in a child of five years.

Former labors and trauma appear to be predisposing causes of cancer of the clitoris. Repeated manipulations of this organ have been the supposed

cause, a case of which is reported by Boivin and Dugès. Hutchinson believes that parts formerly affected by syphilitic lesions are particularly prone to become the seat of malignant neoplasms, and he says: "Syphilitic ulcerations with inflammation and hypertrophy can degenerate into cancer so gradually and imperceptibly that it is quite impossible to say when one lesion ends and the other commences." It is probable that syphilitic lesions act by creating a "*locus minoris resistentiæ*," thus forming a predisposed spot for cancer in predisposed subjects.

Pruritus vulvæ has also been accused as an ætiological factor on account of repeated irritation from the fingers to which it gives rise.

In other cases, psoriasis and chronic eczema of the mucous membrane of the vulva is often the starting point of the affection. Vaginal discharges, producing a constant irritation, prolonged sitting, have also been mentioned as a cause by some writers as predisposing to cancer of the clitoris.

The affection belongs to all classes of society, while according to Bernutz

esthiomene of the vulva is the result of poverty and vice.

Of all the varieties of malignant neoplasms met with in the region of the clitoris, epithelioma is by far the most common.

The encephaloid carcinoma, the melanic carcinoma, squirrhous and sarcoma have been met with, but these types are rare.

The following is a report of a complete histological examination of an epithelioma, made by Dr. Hutinel. The piece was first hardened in gum and alcohol. The sections, made perpendicular to the surface of ulceration, showed them to be full of epithelial prolongations, like a glove finger, "en masse" or like cylinders; sometimes anastomosing one with another, and separated by a very vascular connective tissue, and presenting in places embryonic proliferations. Each of the epithelial cylinders was made up of large cells, identical with the cells of Malpighi's body, but were not so regular in disposition.

Elongated cells, closely cemented together, were to be seen beside the epidermic globes. In other places, the cellular character had nearly disappeared, giving place to a yellowish substance of colloid aspect, in some parts of which yellowish nuclei stood out, evidently being the traces of cell nuclei.

In the neighborhood of the neoplasm, the connective tissue was infiltrated by embryonic cells, filling up the spaces between the connective tissue fibres and around the vessels. In several places the transition of the

epithelial and the embryonic elements was so insensible that it seemed as if the transformation could be observed. Some vessels seemed to be cut through pure epithelial tissue, while others were filled with a colloid substance. The epithelium threw out branches which penetrated the deepest parts of the tissue.

Boivin and Dugès mention a case of encephaloid carcinoma, and one of squirrhous of the clitoris. In a case due to Demarquay, the histological examination showed it to be a melanic cancer. Two cases of sarcoma of the clitoris are cited by Dauriac. The first was reported by de Saint-Germain; the histological examination of the growth showed the following peculiarities. In some spots the normal covering of the mucous membrane was preserved. The underlying layer of epithelium was made up of small round elements, having a very large nucleus. A considerable quantity of capillary vessels were detected between them. These elements were closely embodied against each other. In some places they had a fusiform or star-shaped aspect, and were separated by an abundance of amorphous and granular substance.

In another case examined by Prof. Cornil, the piece was hardened in alcohol, and the sections colored with picro-carmin and log-wood. The epidermis was markedly altered in the centre of the neoplasm, and it was difficult to distinguish the epidermis from the dermis. Between the epidermic cells were found a large number of cells filled with pigment

and throwing out multiple prolongations.

The deep cells of Malpighi's stratum contained pigment, the papillæ were filled with cells more or less voluminous, rounded or of irregular shape, and very pigmented.

If from the epidermis, the central parts of the specimen were examined, the tumor was seen to sink deeply into the dermis. It was principally made up of cells of variable size and rounded in shape, the greater number of which measured from 10 to 15 micromillimetres, with a few attaining the diameter of 40 millimetres. These cells were closely stuck together and piled up, forming nodules or more or less regular agglomerations, separated from each other by connective tissue containing numerous and dilated vessels. The majority of the cells contained pigment granulations in their interior, consequently showing the tumor to be a melanic sarcoma.

Cancer of the clitoris begins, in the great majority of cases, insidiously, and develops slowly. During a certain time, which is of variable length, the neoplasm gives no signs of its presence, and remains unnoticed by the patient.

Later, however, the patient will complain of a sensation of heat or burning at the vulva, especially after walking or after sitting for some time. In other cases, a disagreeable pruritus of the vulva is the first sign which calls the attention of the patient to her genitals. You will find some women in whom this pruri-

tus is very severe, so much so as to be the starting-point of genital excitation, obliging the patient to resort to masturbation.

With this pruritus of the vulva, you may perhaps on examination, find that there is a sero-bloody liquid with a fœtid odor discharged from the parts, and moistening the entire region.

It will most likely be at the time this discharge begins that you will be consulted, that is to say about a few months after the commencement of the affection.

Now, if you make an examination of the vulva, you will find either a tumor or an ulceration. In the first instance, which is by far the most frequent, you will be in presence of the nodular type of epithelioma. The tumor at this time varies from the size of a nut to that of a large egg. Its color is usually reddish, and is made up of a number of lobes agglomerated and clustered together, having the appearance of a cauliflower.

These lobes are sometimes covered by a delicate membrane, which, if torn, gives rise to slight bleeding. In other cases, the tumor is reddish, irregular, there are depressions over its surface which presents yellowish points. At the same time, the surface is usually bathed in purulent, bloody liquid of very fœtid odor. These tumors sometimes give place to slight hæmorrhage, but which is not of any danger to the patient.

The consistence of the neoplasm is different, but quite often it is firm.

At first, limited to the clitoris, the growth tends little by little to invade the neighboring parts, first the labia minora, and majora, vagina, etc.

The patient may only consult you when the growth has already invaded the clitoris and labia minora, so that it will be difficult to decide on the initial points of the neoplasm, which is all the more natural, because the patient is often deceived herself as to the primary seat of the growth.

In a case published by Richet, the patient stated that the tumor commenced on the labia majora. In spite of this fact, Richet, after a most careful examination, concluded that the epithelioma began by the clitoris, this being all the more probable, because the clitoris corresponds to the corpus cavernosa in man, which is quite often the seat of this affection.

In the ulcer type of epithelioma, you will find an irregular ulceration, with an indurated base, and elevated above the surrounding parts. This ulceration varies in size from a ten cent piece to a dollar piece. The surface is either covered by fleshy granulations, which are exuberant and bleed easily when touched, or the ulcer is deeply seated, irregular in surface, and has a reddish color. The borders of the ulceration are hard, elevated, rough, unequal, and covered with exuberant granulations. They are sharply cut, moist, of a rosy color on the inner aspect, and covered with scabs on the periphery.

Epidermic scales, similar to those found in a commencing canceroid may also be met with. The parts sur-

rounding the ulceration may be covered with patches of psoriasis.

You will sometimes find them fissured or thickened, hard and reddish, and looks as if it were raised up by a subcutaneous projection from the tumor. The labia, which is the seat of the ulceration, is undurated, tumefied, and may be so large as to attain three times its normal size.

In this case, when the neoplasm has taken such a development, the hair follicles may have their vitality destroyed, rendering the vulva hairless.

Both nodular and ulcerous types of epithelioma develop sooner or later an inguinal adenitis.

Edes has reported two cases of epithelioma of the clitoris. The first case was an unmarried female of forty-five, who for the past five years had complained of irritation of the parts but had only recently noticed the presence of a growth. There was also some irritation about the meatus urinarius, sometimes accompanied by pain on urinating. For three weeks the patient had noticed a discharge from the tumor. The inguinal glands were not involved. The clitoris with the neoplasm were removed with a Paquelin cantery: the operation was not complicated by hemorrhage of any consequence.

The second case was that of a woman who had been treated for chancre for over a year, but without improvement. The inguinal glands were enlarged. The neoplasm was removed, but the patient died three months later.

Another case of carcinoma of the clitoris, due to Merkle, was that of a woman of sixty-one years, who had a tumor the size of an apple, which was just beginning to break down. There was found one enlarged gland in the left groin. The neoplasm was removed with the thermo-cautery; the patient, however, died seventy-three days after. The autopsy showed the growth to be an epithelioma of the clitoris with metastasis in the lymphatics.

Besides epithelioma, which is the most common malignant primary neoplasm of the clitoris, I would mention others, of extreme rarity it is true, because the possibility of their presence should be known to you.

A melanotic carcinoma was obtained by Demarquay in 1868, in a woman aged seventy-two. This tumor in the beginning was only the size of a pea, black in color, and perfectly indolent. It remained for a considerable time without increasing in size, and then suddenly it took on such a rapid growth that it ended by nearly completely obliterating the orifice of the vulva.

At the same time it ulcerated in several places, giving rise to a discharge of a sticky liquid, which at first was white and finally became yellow, staining the underclothing. The clitoris became the seat of a slightly oozing sero-bloody liquid and very sharp lancinating pains. The patient was operated on and microscopical examination of the growth showed it to be a melanotic carcinoma.

Simple or melanotic sarcoma of the clitoris have also been met with, as well as myxosarcoma. A case of a little girl of five has been reported by de Saint Germain. The growth consisted of a soft mass, hanging from the clitoris and pushing aside the labia majora.

At its upper part it continued directly with the skin forming the hood, while at its lower aspect it presented lobules, separated by deep clefts. There was no pigmentation of the skin or hypertrophy of the inguinal glands.

From these characters the neoplasm was considered to be only a simple hypertrophy of the clitoris and its hood.

Extirpation was performed, and microscopical examination showed that it was a sarcoma. The neoplasm recurred several times in spite of three successive operations, and the little patient died from general metastasis of the affection.

Melanotic sarcoma may also be met with in the clitoris, as the two following cases will show you. The first, reported by Lafleur, was a woman of eighty. The patient suffered from severe periodic hæmorrhages from the parts. The growth had been growing for three years.

It was amputated, the patient making a good recovery. Microscopical examination of the neoplasm proved that it was a melanotic sarcoma.

Dr. Terrillon has recorded the case of a woman of sixty-two years, who presented a tumor the size of a walnut at the site of the clitoris. This

tumor was hard, regular in shape, without nodules or clefts, and perfectly black in color. All around the growth the mucous membrane of the vulva was also black, uniformly pigmented, excepting in a few spots of healthy tissue. This coloration had invaded all of the vaginal mucous membrane up to that of the cervix. The inguinal glands were not enlarged.

The neoplasm was totally removed, the whole wound healing rapidly. However, four or five months later, several small blackish tumors appeared on the right labia minora. At the same time a large bunch of glands was found in the corresponding groin. This bunch was the size of a fist, irregular in shape, and was adherent to the skin.

In the left groin, a few indurated glands were felt, but they were separated from each other. An enlarged gland was also discovered in the sub-clavicular space on the right side. On the back was seen a blackish tumor the size of a walnut, situated in the skin. The patient soon died from the extension of the affection.

The autopsy revealed, besides the above-mentioned lesions, a liver and spleen filled with small foci of blackish color. The inguinal, iliac, abdominal and thoracic glands, were invaded by a melanotic deposit and were very soft.

A histological examination demonstrated the presence of a melanotic sarcoma, a generalized sarcomatosis, having for starting point the clitoris.

As to myxosarcoma of the clitoris,

I am acquainted with but one case, and that due to Robb. The patient was a married woman of twenty-six. She complained of pain about the external genitals, which was increased by the act of coitus. A tumor was found which occupied the left crus clitoridis. It was pointed at either end, hard, movable and slightly lobulated. The neoplasm was contained in a fibrous capsule, which rendered enucleation easy to accomplish with cocaine. Some free oozing followed, but the wound healed well. Microscopical examination showed the neoplasm to be a myxosarcoma.

In another form of epithelioma of the clitoris, which is most interesting and important to note, is where the neoplasm is preceded and accompanied by patches of psoriasis of the vulva, similar to psoriasis of the buccal cavity, so well described by Prof. Debove.

A case of this kind was recorded by Dr. Péan, and I desire to relate it as it will be of considerable instruction to you.

The patient had an ulceration of epithleomatous origin the size of a fifty cent piece, extending from the clitoris to the internal aspect of the right labia majora. The base of this ulcer was indurated, and the induration extended in an irregular manner for some distance away from the growth.

Around the ulceration were seen some whitish patches, which were cracked, and presented the characteristic aspect of psoriasis. They extended three or four centimetres and

covered the mucous membrane in all points where the induration was felt.

The patient declared that these whitish patches, which were indolent, had preceded the appearance of the ulceration at least two years.

The inguinal glands were perfectly normal.

Now, gentlemen, this leucoplasia of the vulva, which may precede and accompany epithelioma of the clitoris, appears to me to create an interesting analogy between epithelioma of the clitoris and cancrioid of the lips. This is not the only point of likeness in these affections: they both have a marked tendency to recur after operation.

Neoplasms of the clitoris give place to a number of functional disturbances which are common to all types. So long as the epithelioma remains limited to the clitoris, the patient will only complain to you of heat or burning sensations, which are all the more sharp, according to the greater or less amount of surface of ulceration, which is naturally irritated by the passage of urine and vaginal secretions.

The neoplasm may produce an extremely bad and constant pruritus of the vulva, or it may cause sharp lancinating pains, which may shoot up as far as the breasts.

When a secretion is established from the tumor, which has the usual fetor and irritating qualities found in all liquids coming from malignant growths, it will little by little produce an inflammation of the vaginal

mucous membranes, and even vaginitis.

As the cancer progresses, and in so doing invades the neighboring tissues, the functional disturbances are still more pronounced. If it extends to the meatus urinarius, micturition will become painful and difficult, and the patient will experience such a burning that she will dread the time for urinating. If the growth invades the canal of the urethra, of course the dysuria will be greatly increased and may even result in retention of urine. Walking will be given up on account of the pain produced by friction of the parts.

The growth will also be an obstacle to the act of coitus, which will become painful or even impossible on account of spasmodic contractions of the vaginal sphincter.

The lymphatics are usually long in being invaded in epithelioma of the clitoris. Generally several months elapse before they are attacked, and this fact is of course a most favorable point for the treatment and ultimate result.

The progress of epithelioma of the clitoris is, generally speaking, slow, and it is safe to say that its duration may be considerable.

As I have pointed out to you, the beginning is slow and insidious; the growth may have been present for several months before the patient notices it.

It is after the latent stage of the malady that a series of functional disturbances, of great discomfort to the

patient, make their appearance, and I will not repeat them. Now, it is just at this time that the patient will consult you, and on examination you will find a condition of things that generally will not be difficult to recognize.

If you remove the neoplasm, as you should if the disease be not too far advanced, a permanent cure may be obtained, but recurrence is frequent and takes place with most astonishing rapidity, especially in cases of melanotic sarcoma.

If an epithelioma is left to itself, spontaneous cure, although most exceptional, is not impossible. I would quote to you what so great an authority, Prof. Cornil, says on this question: "It is certain that the tubulated form of epithelioma may be so superficial that it may get well, leaving a complete cicatrization on a large portion of the skin. The ulcerated part itself gives proof of the possibility of cicatrization, for the centre of the ulceration does not differ from a healthy wound, and the inflammation, after destruction and elimination of the epithelial mass, extends no further than the dermis." But, I repeat, this ultimate result is very exceptional.

An epithelioma left to itself will progress in most instances, invading the neighboring tissues, and particularly the mucous membrane of the vagina. The meatus urinarius and the neck of the bladder can be successively invaded, resulting in perforations, which are followed by vesico- or urethro-vaginal fistula. In the first case, the urine will be constantly

voided per vaginam, while in the second its appearance is intermittent and only is present during micturation.

These complications are infrequent, and fortunately so for the patient.

Epithelioma may attain the cervix and the body of the uterus as well, and at the same time the inguinal and lumbar glands undergo a secondary degeneration.

Among the very infrequent complications, I would mention the propagation of the affection to the rectum, which is indicated by a great activity of the intestinal secretions, a copious diarrhœa, and occasionally rectal tenesmus. In still more infrequent cases, the disease, instead of following the mucous membrane, extends over the skin of the pubis or perineum.

A case is recorded by McClintock, in which the neoplasm invaded the entire external genital region, the pubis, groin, perineum and around the anus.

Other cases are reported where an epithelioma invaded the labia majora, the skin of the pubis and groins.

If the neoplasm be a melanotic sarcoma, you are, gentlemen, in the face of the most terrible of all malignant growths. It extends with a most astonishing rapidity, invading the lymphatic system, the abdominal and thoracic viscera in a very short lapse of time. As an example of its ravages I would mention the case of a lady of about forty, from whose breast we removed a small melanotic sarcoma. At the time of the operation, some lymphatic glands in the

corresponding axilla were found enlarged and were removed. This operation was done, if I remember correctly, in June, 1890, and the patient died the following August. At the autopsy the liver, kidneys, spleen, lungs and brain, were filled with foci of metastasis.

In addition to the local functional disturbances attending the presence of a neoplasm of the clitoris and its extension, you will have before you, as the case advances, the usual picture of the cachectic condition, oedema, diarrhoea, and intense suffering close the unhappy scene.

As to the prognosis of malignant growths of the clitoris, it may be admitted that it in no way differs from that of the same tumors in other parts of the human economy. Recurrence is frequent after operation, and the patients end their existence by a general invasion of the affection.

As to the diagnosis, gentlemen, I have something to say, as it is most important. Now, if an aged person should consult you for a tumor of the clitoris, covered with vegetations which bleed when touched, and secreting a dirty liquid with a fetid odor, the diagnosis of epithelioma is easy. But it is not always so, and in some cases the diagnosis may give rise to considerable difficulty and error.

In several cases the neoplasm was regarded as an indurated chancre, and the patients were put on an anti-syphilitic treatment, thus losing much valuable time.

I will trace out the various means of distinguishing epithelioma of the

clitoris from other affections which resemble it in appearance.

As I have already pointed out, the tumor in the beginning only produces a few slight functional disturbances which do not annoy the patient sufficiently for medical advice, consequently an early diagnosis is hardly ever made.

But if you have an aged patient who complains of itching and pruritus of the vulva, which is exasperated by walking, and if this patient has cancer in her family history, you should always have in mind the possibility of cancer of the clitoris in its early stages, and do not hesitate to ask for an examination, which should be carefully done. By this means you may be fortunate enough to find a tumor in its commencement, or discover the presence of patches of psoriasis of the vulva, which as I have shown you, is sometimes the prelude of epithelioma.

Later on, when an epithelioma has developed into a tumor, be it ulcerated or not, the diagnosis may be quite difficult.

I do not think that you would have any trouble in recognizing the various benign tumors which may develop in these parts, such as papilloma, erectile tumors, cysts of the urethral glands, vegetations, etc.; but hypertrophy of the clitoris, the soft or hard chancre, elephantiasis and esthiomene of the vulva might easily lead you into error, as they have other men, even of great experience.

Simple hypertrophy of the clitoris is distinguished by its more regular

shape and firmer consistency: also from the absence of bleeding granulations and foetid secretions. The lymphatic glands are normal.

The differential diagnosis of hard chancre and epithelioma is more difficult. Both affections may appear as a small circular ulceration, with a slightly elevated base, hard and painless.

But an epithelioma makes slower progress, and usually has been preceded by a more or less severe pruritus, which attracts the notice of the patient. A cancerous ulceration is ragged and irregular, and usually covered with a dirty liquid, and the inguinal glands are becoming enlarged.

The surface of a indurated chancre is more regular, shiny and dry, and is accompanied by enlarged inguinal glands, and what is the most important of all, are the secondary symptoms, which remove all doubt as to the real nature of the affection.

Tertiary lesions may also be mistaken for malignant disease. In both, the lesions may have that withered and dirty appearance in an old cachectic patient. Now, if the lesion be one of syphilis, you will have the history of the secondary manifestations of the affection: there will be no bleeding from the parts and only a slight induration of the bottom and borders of the ulcer; and still more there will probably be other manifestations of the diathesis at some other part of the body, if you take the necessary care in looking for them.

If, after all, you should still be in doubt, put your patient on specific treatment, which will in all probability produce a rapid amelioration in the case of syphilis.

There are some patients of lymphatic constitutions, in whom the *ulcus molle* may take on a phagedemic form, and their lesion mistaken for cancer. But the indurated base of malignant disease is absent in soft chancre, and remember that the progress of the latter affection is much more rapid than in the former; and furthermore, the inguinal adenitis is very much quicker in appearing, or a bubo may form, a complication which will never arise in the case of malignant neoplasms. And still more, the soft chancre is highly auto-inoculable, and this inoculation is favored in the female on account of the friction of the external genitals which are so closely opposed.

From the above mentioned characteristics, I do not believe that you will be long in coming to a correct conclusion, if you carefully consider the question: but if there still remains a doubt in your mind, why then I should advise you to inoculate your patient with the discharge from the surface of the ulceration, which in the case of *ulcus molle*, will be followed in a few days by a positive result.

Epithelioma or sarcoma may be confounded with an affection of the vulva, first described by Huguier under the name of *esthiomene*, and which in reality is only *lupus* of the vulva. Now, contrary to *lupus*, whose progress is slow, and in which disease

the ulcers have a strong inclination to repair, malignant growths advance with greater rapidity, invade the tissues, at the same time destroying them, without ever showing any signs of cicatrisation.

You must also bear in mind that lupus is a frequent manifestation of the scrofula diathesis, so that you must go over the patients antecedents carefully, and make an examination in order to ascertain if there are any signs of old symptoms, or if the lesions so characteristic of the affection are present, such as enlarged glands, and chronic disease of the eye, nose or ear, troubles which are so common in strumous subjects.

Guérin and Bernutz laid great stress on the co-existence of lupus of the face with that of the vulva. Do not forget the aid that bacteriology may be to you, and in doubtful cases make careful examinations for Koch's bacillus, which although difficult to obtain, will be of utmost importance in the point of diagnosis, if its presence be detected.

The age of the patient must also be considered, as epithelioma is more often met with in the aged, while lupus and sarcoma are diseases of adult life.

The diagnosis between a tubercular and carcinomatous ulceration may be difficult; however, you will remember that in the former the ulcer has a granular bottom of a rosy-gray color, secreting a yellowish pus. The much regretted Prof. Trélat pointed out that a number of yellowish points were scattered around the limits of

tubercular ulcerations, and this sign should be looked for. At the same time the lungs should be examined for signs of tuberculosis, and the spleen should be percussed in order to ascertain if it be enlarged.

Carcinoma is to be distinguished from epithelioma by its more rapid progress and its more destructive action on the surrounding tissues, as well as more severe hæmorrhages.

As to the treatment of malignant neoplasms, I would advise you to only use the knife. Formerly surgeons employed the ecraseur or the thermocautery in order to avoid hæmorrhage. But since the clamps devised by Péan are now currently employed, bleeding is not to be feared. You will consequently dissect out the *entire* growth, removing with it part of the surrounding healthy tissue, not forgetting to extirpate all the enlarged inguinal glands, if any are to be found. The corpus cavernosus should be removed with the clitoris, and you will take great care not to injure the meatus urinarius if this canal is not invaded by the neoplasm. In a case where the urethra is invaded by the growth, you must introduce a sound into the bladder and dissect the parts away, using the sound as a guide.

After thorough hæmostosis, the surfaces are united by silver wire, or, as I prefer, with sublimated silk. If you employ proper asepsis you will probably obtain reunion by first intention.

The dressings should be composed of iodoform gauze covered with sub-

limited gauze, the whole being held in place by a T bandage or a spica.

Inoperable cases will call for medical treatment. You must keep the parts as clean as possible with a one per cent. solution of creolin, eucorline, or lysol, and dust the surface with iodoform, or what is better, I think, with eucrophene.

To relieve the pain, morphine must be used freely.

Chéron recommends the following as a vaginal injection when the disease has invaded the vagina:

R	Kalii carbonat, 18.0
	Tinct. opii, 5.0
	Aque, 200.0
m. f. solut.	

Of this solution two or three spoonfuls are added to a litre of water, which is used as a vaginal irrigation, night and morning.

As it is my duty to instruct you in the latest ideas, I must before closing this lecture say a few words regarding a new treatment for inoperable carcinoma, which has lately been described and practised by my former and esteemed teacher, Prof. Vuillet, of Geneva. This treatment consists of intra-perenchymatous injections of alcohol.

After rendering the parts as aseptic

as possible, three or four hyperdermic syringes are taken from the sterilizer and filled with *absolute alcohol*. The patient being placed in the genu-pectoral position, the first injections are made in the centre of the neoplasm. When the needle has penetrated sufficiently, so that a normal resistance is felt, three or four drops of alcohol are injected.

If bleeding occurs from the penetration of the needle, you should wait until this has stopped, otherwise the alcohol would run out with the blood.

Seven or eight drops of alcohol are injected, and the stop-cock of the needle is closed, the syringe withdrawn. Another needle is then inserted and the same technique followed. Four or five injections are thus practised at one séance, always proceeding from the centre of the neoplasm towards the periphery of the neoplasm, the last one penetrating the apparently healthy tissue.

In closing, let me mention the interstitial injections of an alcoholic solution of salicylic acid, and last of all the toxins of erysipelas, as practiced by Dr. W. B. Coley of New York. These various injections should be tried in all cases of inoperable malignant neoplasms.

Two Cases of Acute Intestinal Obstruction.*

A CLINICAL LECTURE DELIVERED AT ST. GEORGE'S HOSPITAL, MAY 21, 1895.

BY T. PICKERING PICK.

Surgeon to the Hospital.

GENTLEMEN: On April 17th, about six o'clock in the evening, I was summoned to the hospital to see a case of acute intestinal obstruction which had been admitted that day under the care of Dr. Whipham.

I found the patient, Albert S., who stated that he was 55 years of age. He gave the following history of himself, and of his illness. His mother died of phthisis. He has been a fairly temperate man all his life: "never been a heavy drinker." When ten years old, he was ill with some affection of the abdomen, for which he was leeches; the illness lasted two months. For the last two weeks he has had pain in the region of the stomach about two hours after every meal; the pain has lasted about half an hour, and has then passed off. This pain has been getting worse, but has never caused or been followed by vomiting. He thinks he has lost flesh lately, especially during the last two weeks. On the 15th, two days before admission, his bowels acted well. On this day he went to bed feeling perfectly well, but awoke about midnight with a violent pain in the epigastrium of a gripping charac-

ter, with which he had been suddenly seized. He took some brandy but immediately vomited it, and therefore came at once to the hospital. He was given a dose of opium which he also vomited at once, and he was then injected with morphia. He refused to remain in the hospital and returned home, but got no relief to his pain, which continued throughout the night. On the morning of the day before admission he vomited again, independently of taking food, the vomited matter being described as green in color. Since then he has been constantly sick. His bowels have not acted since the 15th, but he has passed a little flatus.

When I saw him on the evening of the 17th, I found that he was a hale-looking old man. He complained of pain all over the belly, and did not refer it to any particular spot. There was, however, more tenderness on palpation above and to the right of the umbilicus than in any other situation. The abdomen was uniformly distended and tympanitic, but the coils of the intestines did not show through the abdominal wall. The flanks were not particularly prominent nor resonant. There was post-

*The Clinical Journal, June 12, 1895.

sternal resonance about as high as the nipple line. Abdominal breathing was almost entirely absent. The expression of the man's face was placid, and betokened no anxiety. The tongue was slightly coated, and inclined to dryness. The vomited matter was distinctly stereoraceous. The lungs were slightly emphysematous. The heart sounds were natural, but the apex beat was on a level with and a little internal to the left nipple. The pulse was compressible, the upstroke being sharp. The temperature was normal.

I at once came to the conclusion that the patient was suffering from acute intestinal obstruction; that the obstruction was in the small intestine, and that from the history of the attack when he was a boy, and the sudden onset of the symptoms, that it might probably turn out that the obstruction was due to a band. At all events it was clearly a case for immediate operation, and I had the patient at once taken to the operating theatre.

After the patient had been anesthetized, I made a small incision in the linea alba, below the umbilicus. Immediately upon opening the peritoneal cavity I came down upon two coils of intestine—the one much distended, the other collapsed and empty. Upon tracing the latter upwards and to the left, I came upon a coil of intestine which was encircled by a thin cord, not thicker than a piece of thread. It was so thin that it did not seem worth while to ligature it, and it was therefore simply

broken through. The liberated coil was now drawn down into the wound and examined. It was intensely congested and almost black in color. At the point where it had been constricted there was a white line encircling the gut, but the peritoneum was still intact. In the course of a second or two the gut began to recover its color, as did also the white streak, which became pinkish. There was a small quantity of dark blood-stained serum in the peritoneal cavity, which was therefore irrigated with hot boracic solution and sponged out. The wound was closed, dressed, and the patient sent back to bed.

I need not weary you with a recital of the after progress of the case. The man made an uninterrupted recovery without a single untoward symptom, beyond a little bronchitis with which he was attacked on the fifth day after the operation.

On the evening of the same day (April 17th) about 9 o'clock, I was again called to the hospital to a second case of intestinal obstruction.

I found that the patient, a married woman aged 37, had been admitted under the care of Dr. Whipham a few hours previously. There was no family history bearing on the case. The patient had suffered from small-pox as a child, but no history of any other illness could be obtained. She had all her life suffered more or less from constipation, but she did not appear to think that this had been worse lately. She had borne three children, all of whom were living, and she had never had any miscar-

riages. Up to April 12, five days before admission, she had felt perfectly well, and on the morning of this day her bowels had acted freely. On the morning of the 13th she awoke with a general pain all over the belly, which she was unable to localize in any one particular spot. Her bowels did not act, and she passed no wind. She remained in bed all day. On the following morning (14th) she tried to get up, but the pain was so bad that she was forced to return to bed. The abdomen now began to swell. On the 15th she vomited, the ejecta smelling "nasty." Three enemata were administered in the course of the day, with the result that she passed some wind, but no motion. On the 16th she was still in great pain, and the abdomen had become more swollen. She again vomited once, the matter ejected "smelling as if it had come the wrong way." On the 17th the pain was still worse, and she felt utterly worn out by it and by the want of sleep, as she had had no sleep since she was attacked on the 13th. She was now brought to the hospital.

When I saw her I found her in a very exhausted condition. She was perfectly conscious and answered questions rationally, but with difficulty and in a low tone. There was marked anxiety of expression. The pulse was quick, weak and fluttering; the tongue was dry and coated at the edges. She complained of pain all over the abdomen, which was enormously distended, the skin over it tense, and the coils of intestine visible

through the abdominal wall. There was no peristaltic movement to be seen; the whole abdomen was uniformly hyper-resonant. Both flanks were bulging and resonant. Nothing could be felt by the rectum, which was empty. She had not been sick since her admission, and therefore her vomit could not be inspected. She had passed about two ounces of water, which was high-colored and loaded with lithates.

She was at once removed to the operating theatre, and having been placed under the influence of an anaesthetic, the abdominal cavity was opened by an incision in the median line, below the umbilicus. Upon incising the peritoneum, the first thing which presented itself was an enormously distended caecum, which was certainly as big as an ordinary adult head, its coats were of extreme thinness, and in one place there was a rent in the peritoneum where it had evidently given way from tension. The whole of the rest of the large intestine was distended, though not to the same extent as the caecum. On following it round and introducing one's hand deeply into the pelvis, following down the sigmoid flexure, which appeared to be looped on itself, a hard mass was felt in the bowel in Douglas's pouch, just by the side of the lower end of the rectum. This lump was brought to the surface, and proved to be a new growth of extreme hardness, encircling and infiltrating the walls of the bowel for the extent of about an inch. This was clearly a malignant growth; and as no second-

any growths could be felt elsewhere, it was determined to excise it. It was, therefore, drawn out of the abdominal wound, and hot sponges packed all around it in order to retain the rest of the intestine in the abdominal cavity, and to prevent soiling the peritoneum. This was only accomplished with great difficulty on account of the distended condition of the gut. A small canula was now introduced into the bowel just above the stricture, and a very large amount of air escaped, causing considerable diminution in the size of the intestine. The bowel was now clamped with india-rubber-tubing, which was made to encircle it above and below the growth, and then fixed with clip forceps. The portion of intestine between the two clamps, about four inches in length, was excised, together with a triangular portion of the meso-colon. The vessels having been secured, the largest-sized Murphy's button available was introduced, fixed in position by a running thread through the intestine and the two parts of the button approximated. The meso-colon was sutured. The external wound was now closed, dressed, and the patient sent back to bed.

She was somewhat collapsed after the operation, and was ordered an enema of hot brandy and water. This was repeated once during the night. The next day (18) she was found to have entirely lost her anxious expression, and stated that she felt comfortable and free from pain. She had passed a considerable amount of flatus,

and her abdomen was not nearly so distended, and felt soft and flaccid. Her pulse was fuller and stronger, her tongue moister, her temperature normal. On the 19th she was still comfortable and doing well. She was in no pain, and had passed wind, but no faeces. Her diet had simply consisted of clarified beef-tea, arrowroot, and two ounces of brandy in the twenty-four hours. On the following day (20) she was not so well. She had passed a restless night and complained much of pain in the abdomen, and also of distension. The face was somewhat cyanosed, and there was an anxious expression of countenance. She had passed no wind since yesterday. The abdomen was again found to be much distended, the abdominal wall being tense and the abdomen universally tympanitic. It seemed quite evident that from some cause or other the Murphy's button had become blocked, so that nothing could pass through it, and it seemed equally evident that if something were not speedily done to relieve her that she would die. I first of all introduced the tubular needle of an aspirator through the left loin into the descending colon in the hopes that I might draw off sufficient flatus to give her relief. Some little air did escape through the tube, but not sufficient to give her any relief. As it seemed that the symptoms of obstruction must be due to a blocking of the button, and not to a paralysed condition of the gut, I determined to open the descending colon. This I did, performing an ordinary lumbar coloto-

my. The gut was easily reached by the usual incision, and upon opening it a large amount of fluid fæces and wind escaped. The original wound in the linea alba was dressed previous to the operation, and guarded in such a way as to prevent its becoming contaminated by the colotomy wound. It looked perfectly quiet and natural.

On the following day the patient expressed herself as feeling enormously relieved, and stated that she felt better than she had done since the commencement of her illness. She had passed a quiet night, and slept well. Her condition in all respects was satisfactory. Her countenance had lost its anxious look. The abdomen was soft and flaccid, and not tender on pressure. Her temperature was normal, and her tongue moist and clean. She expressed herself as able to take, and anxious to have, more food. She continued in the same condition throughout the following night, progressing in every respect in a satisfactory manner, and when the house-surgeon saw her on the morning of the 22d, about 9 o'clock, he saw nothing about her to excite his suspicions that anything was wrong. About noon he was called to her and found her complaining of great pain over the abdomen, and in a state of collapse, and she died very shortly afterwards.

A post-mortem examination was made the next day, and upon opening the abdomen there was found to be evidence of recent peritonitis. The peritoneum had lost its shining

glistening appearance, and the intestines were injected and the coils adhering together. In the lower part of the peritoneal cavity there was a small quantity of fluid which looked like the contents of the intestinal tube. The cæcum was still much distended, and its coats as thin as tissue paper. On its anterior aspect was a perforation the size of a sixpence, and on the mucous surface for a considerable area around this perforation, the lining membrane was in a sloughy condition. The sigmoid flexure was removed entire. It was found that the Murphy's button was still *in situ*, but the condition of the parts was not quite satisfactory, for the mucous membrane of the gut was ulcerated just beyond the point where it had been compressed by the margin of the button. So that it is possible that a perforation might have taken place here if the patient had lived. In fact a perforation was actually found at this spot at the post-mortem examination, but it seemed probable that the serous coat was torn through in removing the gut, and that the perforation had not actually taken place during the life of the patient. Furthermore, the central tube of the button was completely blocked by a mass of fæces. Upon removing this mass it was found that the obstruction had been caused by one or two pieces of a membranous material, which looked like, and probably was, potato skin. This no doubt had been swallowed by the patient previous to her illness, and having passed out of her stomach undigested, had re-

mained in the canal and had been the cause of obstruction in the tube.

And now, gentlemen, what lessons can we learn from a consideration of these two cases. There is one fact which stands out very strongly. The one patient recovered, the other died. And why was this? Well, it is the old, old story, the lesson which I doubt not has been taught you over and over again, but which cannot be taught too often, which cannot be reiterated too frequently: it was delay that killed the one; it was prompt action which saved the other. I am glad to say that we had nothing to do with the delay which caused the death of the second case, for we operated within a very short time of her admission into the hospital. And I am thankful to say that this is now becoming the rule. Physicians and surgeons are becoming alive to the dangers of delay, and the necessity of immediate action. But it was not always so. At no very far distant period patients with intestinal obstruction were treated with opium and belladonna on the one hand, or with large doses of calomel on the other; they were treated with large enemata, and long tubes were passed up the rectum until they were almost in a moribund condition, and then they were handed over to the surgeon for operation, when it was too late. I cannot tell you how many cases of laparotomy I performed before I had my first successful case; but the history of one would be the history of all. They died because the operation was deferred too long.

Let us contrast these two cases in this respect. The man's strangulation probably took place about midnight on the 15th, and he was operated on at 6 P. M. on the 17th, a period of forty-two hours. Yet, this time was sufficient to produce very marked effects, and it is absolutely certain that if the strangulation had been allowed to go on much longer a fatal issue would have resulted. When operated upon the gut was quite black from congestion. Where the band had constricted it, the gut was encircled by a white line, where the vessels had been compressed and all the blood had been driven out of them, and where perforation would have undoubtedly taken place very shortly: and in the peritoneal cavity was a quantity of bloody fluid which had been exuded from the congested vessels. In the woman, the obstruction probably took place at some time on the night of the 12th, and she was operated upon on the 17th, five whole days before the obstruction was relieved. It was this that killed her; for mark what she died of: not from the operation, either from shock immediately, or peritonitis consequent on the operation: not of the excision of a portion of the bowel; not even of the accidental blocking of the Murphy's button, because of this she was relieved by the second operation, but by the giving way of the cæcum, the over-distended and thinned bowel—the over-distension and thinning of which had gradually been coming on during those five days of complete obstruction. So that there cannot be

a question that the woman died in consequence of the delay in the operation, and there is every reason to think that if the operation had been performed earlier she would have had a much better chance of recovery.

I do not apologize to you, gentlemen, for bringing this very trite lesson before your notice, for it is a point which cannot be too strongly insisted upon. If you would save your patient who is suffering from acute intestinal obstruction you must operate early. I think it is quite possible that if you carry out this rule it may happen to some of you some day that you may perchance operate on a patient unnecessarily. That you may find when you have opened the abdomen that there is no obstruction. It may happen to one of you; it may happen to me. Well, if it does it will be a matter of profound regret. But I say this: I would sooner do this: I would sooner open a patient's abdomen unnecessarily than I would delay an operation too long and find that when I did operate I was too late.

And now let me say a word upon the diagnosis of these two cases and compare and contrast the one with the other. In both there was acute intestinal obstruction. This was evidenced by both patients being seized more less suddenly with severe abdominal pain; the pain being colicky in its nature—more or less constant, but with exacerbations; in both there was vomiting, copious and persistent; in both there was absolute constipation, and in both there was distension

of the abdomen. But these symptoms differed in the two cases, especially as regards the distension and the vomiting. Let us consider these differences. The man's belly was uniformly distended and tympanitic, but the distension was not excessive. The coils of intestine did not show through the abdominal wall and there was no bulging or resonance in the flank. In the woman the distension was excessive, the coils of intestine could be plainly seen through the abdominal wall, and both flanks bulged out prominently and were hyper-resonant on percussion. What could we deduce from this? Clearly that the obstruction was in the small intestine in the man and in the large intestine in the woman. In the latter case the greater distension and especially the bulging and resonance in the flanks, proved that the large intestine was distended with flatus, and that, therefore, the obstruction was at the lower part of the large gut, either in the sigmoid flexure or the rectum. Whereas the absence of bulging and resonance in either flank in the man, proved that the large intestine was empty, and that the obstruction was in the small intestine.

The history and character of the vomit pointed in the same direction. In the man the vomiting came on a very few hours after the strangulation. As we have seen, the strangulation probably took place about midnight on the 15th, and he vomited early on the morning of the 16th, within six or seven hours of the occurrence of the strangulation. I

have disregarded the vomiting which took place almost immediately after he was seized with the pain, and during which he rejected the brandy he had taken, and also the vomiting induced by his taking the opium, though they are important as showing that the stomach was already in an irritable condition. When once, however, he commenced to vomit on the morning of the 16th, he continued to do so persistently, and quite independently of taking food or anything into his stomach, and the vomit very soon became stercoraceous. During the short time he was in the hospital, between the time of his admission and the time of the operation, he vomited three times. In the woman the condition of things was very different. We have seen that the strangulation took place probably at some time during the night of the 12th, and she did not vomit for the first time till the morning of the 15th, and then she did not vomit again till the 16th, after which she only vomited once or twice till the time of her admission, and during the two or three hours she was in the hospital before the operation she did not vomit at all. So that in the man the vomiting was one of the most prominent symptoms; in the woman it was not so, it was one of the least urgent. Now this pointed to the same conclusion as did the difference in the degree of distension of the abdomen. In the man the early persistent uncontrollable vomiting pointed to a strangulation pretty high up in the small intestine, whereas the less urgent and longer de-

layed vomiting in the woman pointed to an obstruction considerably lower down and probably in the large intestine. So that from a consideration of these facts, we arrived at another stage in our diagnosis. As I have already said we had already come to the conclusion that both patients were suffering from acute intestinal obstruction: we could now assert that probably the obstruction in the man was somewhere about the middle of the small intestine, somewhere about the junction of the jejunum and the ileum; not higher than this, for if it had been there would have been less distension. And that in the woman the obstruction was low down in the sigmoid flexure or the rectum.

Thus far, in these cases, you may usually go; that is to say you can in most cases that come under your notice diagnose the fact that there is acute intestinal obstruction, if this condition is present, and you can generally pretty accurately make up your mind whether the obstruction is in the small or large intestine. But beyond this, it is not often possible to do more than conjecture. Fortunately, however, a diagnosis beyond this point is not so absolutely essential; you have got sufficiently far to indicate your line of treatment, and to justify you at all events in making an exploratory incision. Still, however, you can generally make a very shrewd guess at the cause of the obstruction, at all events in a large proportion of cases.

Let us see what material we had

in these two cases for forming an opinion. Taking the case of the man first; was the obstruction due to an internal hernia, that is to say, strangulation by a band or through an aperture, or was it due to a volvulus or twisting, or an intussusception, or a stricture, or obstruction by a tumor or foreign substance in the bowel? Well, it is impossible to say with any certainty, but there was just one little point in the history which pointed to the probability of there being a band over which a knuckle of intestine had become looped and strangulated, and that was the account which the man gave of having, when a boy, suffered from some serious affection of the stomach, necessitating the application of leeches, and which therefore was probably peritonitis, though it must be confessed that leeches were much more indiscriminately used forty or fifty years ago than at the present day. Assuming, then, that the patient had had peritonitis as a child, it led to the conjecture, and it was nothing more than this, that his symptoms might be due to strangulation from a band. Against this, however, it might be urged with perfect justice that his symptoms came on while he was lying quietly in bed; and in those cases where the obstruction is due to the strangulation by a band, the symptoms usually come on whilst the patient is making some muscular effort, such as straining at stool, lifting a heavy weight, and such like. Still, the point was sufficient to induce us to hazard a conjecture that a band might be the cause of the

strangulation, though there were some symptoms which induced us to think that it might be a malignant stricture which had become suddenly occluded; for instance, the age of the patient, the pain which he had suffered after taking food for some time previous to the attack, and the loss of flesh. He had not, however, the aspect of a man suffering from malignant disease. As our notes tell us: "He was a hale hearty-looking man, with a good deal of color in his face, and altogether presented the appearance of robust health." Accordingly we operated in uncertainty as to what we should find as the cause of the obstruction; and this as I have said, is what we often have to do. This certainly was the case with the woman, in whom I opened the abdomen in the greatest uncertainty as to what I should find. We had, as I have already pointed out, come to the conclusion that the obstruction in this case was in either the sigmoid flexure or the upper part of the rectum. Now, by far the most common cause of the obstruction in this situation is malignant disease; and of course our attention was at once directed to this point. But all her symptoms seemed to point away from this. The age of the patient, thirty-seven, was against it being malignant disease; it is not till the latter part of middle life or in old age that this disease usually declares itself. The appearance of the patient also negatived the hypothesis; she was not a very robust woman, but she appeared to be fairly healthy-

looking, and there was no history of her having recently lost flesh. Nor, indeed, was there any history, such as one usually gets in cases of malignant disease, of obstruction, nor of constipation with diarrhoea, nor of passage of blood or mucus, nor of pain, nor finally of altered shape or size of the motions, though I regard this last as a most unimportant and fallacious sign. It is true the patient told us that she suffered from constipation; but this constipated habit had been her natural condition throughout life, and certainly had not been worse as far as she knew latterly. Then, again, an examination by the rectum gave negative results: nothing could be felt by the finger, so that at all events there was no malignant disease in the lower part of the rectum, the favorite site of the disease. It was impossible to ascertain anything by a bimanual examination or by palpation through the abdominal wall, on account of the distended state of the bowels. But I do not think even if there had not been this distension that we should have been able to have felt the tumor through the abdominal wall, for, as I have told you, it was situated deeply in the pelvic cavity.

Another possible cause of the obstruction in this case might have been a cicatricial contraction—the result of former ulceration, either dysenteric or otherwise. But here again the history failed us entirely. There was no history of any dysenteric symptoms, nor of any diarrhoea, nor discharge of mucus or blood, nor any

previous symptoms of stricture. We were, therefore, obliged to discard this hypothesis.

Then, again, a third cause might have been a volvulus or twisting of the gut. The most common situation of this is in the sigmoid flexure, and the history of habitual constipation gave some probability to this view, because there is always a history of this in these cases. Volvulus does not take place unless the mesocolon is elongated, and this elongation is in most cases the result of long-standing constipation. But against its being volvulus were two or three important facts. This condition is much more common in male than in female—I believe in about the proportion of four to one. It rarely occurs before the age of forty, the most common age being about sixty. The abdomen soon becomes rigid from the rapid supervention of peritonitis, which almost always sets in early in these cases. Finally, the great distension of the abdomen is always on the left side from the distension of the loop, and as a rule the coils of intestine are not visible through the abdominal wall. Now, in our patient the greatest distension was on the right side of the abdomen in the region of the caecum, and the coils of the intestine were plainly evident through the wall of the abdomen. The bulk of evidence seemed, therefore, to be against its being a volvulus.

Finally, the obstruction might have been due to the pressure of some tumor or other body outside the

bowel; as, for instance, a retroverted or retroflexed uterus, an ovarian tumor, a fibroid tumor of the uterus, an hydatid cyst in the pelvis, a large abscess or many other tumors which will readily suggest themselves to your minds. But here again the history entirely failed us. There was not the slightest evidence that such a tumor existed, and we were obliged at once to abandon this idea. We, therefore, opened the abdomen in complete ignorance of what we should find, and, as you have heard, we found a small ring of gut infiltrated with carcinoma, which had contracted the lumen of the tube and was undoubtedly the cause of the obstruction. And this leads me to say a word or two on the way in which a sudden obstruction was produced by the infiltration of the walls of the gut with a new growth, which, however rapid its rate of growth, could hardly be expected to produce *sudden* obstruction. Moreover, when we examined the parts after removal we found that though the lumen of the tube was very materially constricted at the diseased spot there was, nevertheless, a free passage through the stricture, sufficiently large to allow the introduction of an ordinary cedar pencil. Why, then, should sudden and complete obstruction have taken place, while there was a passage through which fluid feces, at all events, could find their way.

The most common manner in which a gradually increasing stricture suddenly becomes occluded is from the narrowed opening becoming closed by

a lump of feces or some foreign body, generally something which has been swallowed and has not been digested. But this was not so in our case, for there was nothing blocking up the opening when we examined it after removal, and there was nothing but fluid feces in the portion of gut removed. Or again, the sudden obstruction may be due to spasm of the gut. Just in the same way as we may get retention of urine in a case of stricture of the urethra from spasm, so I suppose we may get a spasm of the muscular coat of the bowel producing sudden and complete occlusion. But I do not think that this is often the cause, otherwise we should find that these cases would be relieved by medical treatment oftener than they are. You know how almost certain it is that if you put a patient who is suffering from retention of urine, from so-called spasmodic stricture of the urethra, into a hot bath and give him a dose of opium, he will pass his water. I think the same would apply to spasm of the bowel, and that the spasm would not be so continuous and complete that it would not relax until the patients were dead, especially as in many cases they are given opium before operative interference is undertaken. I think we must look for another cause for the sudden and complete obstruction, and this I think will be found in the fact that we found the diseased portion of the bowel deep in the pelvic cavity, in Douglas's pouch, quite out of its normal position. As far as I can judge I should say that the stricture

in this case was quite at the upper part of the sigmoid flexure, just below the termination of the descending colon. I need scarcely remind you that the sigmoid flexure begins at the level of the margin of the crest of the ilium, and taking a U-shaped turn in the left iliac fossa terminates in the rectum at the left sacro-iliac articulation. If then the strictured portion of gut had been in its proper position, we ought to have found it in the left iliac fossa, just below the crest of the ilium. What I believe happened was that the diseased portion of the bowel from its increased weight descended into the true pelvis, and so produced a kink or turn in the bowel, which was really the cause of the obstruction.

I had hoped to have had time to make some remarks on the treatment of these two cases, especially in regard to that exceedingly ingenious instrument, Murphy's button, which I used in the second case for the pur-

pose of anastomosing the two severed pieces of bowel together. We have seen that it has some disadvantage. The central tube through which it is intended that the contents of the bowel should pass, is rigid and unyielding, and may become blocked by any foreign body which may accidentally be present in the intestinal canal. Nay, I suppose it is not improper to suppose that it may become blocked by a hardened mass of feces, when it is employed to join together the cut ends of the lower part of the large bowel, where the feces have begun to attain a more solid consistence. I was alive to this contingency, and endeavored to avert it by careful dieting, and by giving our patient nothing which would be likely to leave any solid residue in the intestinal canal. Little did I anticipate that a piece of potato-skin not larger than a florin would effectually block the tube and necessitate a second operation.

SOCIETY PROCEEDINGS.

The Detroit Gynæcological Society. Regular Meeting, Wednesday,
January 8, 1896.

The President, Dr. N. W. Webber,
in the chair.

"A CASE OF INTESTINAL OBSTRUCTION OF DOUBTFUL ORIGIN." By
FRITZ MAASS, M.D.

Discussion.

Dr. LONGYEAR. — I do not know that I am especially competent to discuss this paper, but I wish to compliment Dr. Maass. on its extreme interest and the completeness with which he has gone into all the details. In the consideration of ileus I believe there are three general causes. The first is paralysis, which may be of central origin, or it may be due to an affection of the nerves of distribution to the intestines; the second, constriction of the muscular coats of the intestine, caused by irritation of substances within the bowel, as mineral poisons, etc; and third, mechanical causes, such as the presence of tumors, large biliary calculi or impaction of undigested material. Of course there are also adhesions from inflammations. In the doctor's case it seemed to me that I would come to about the same conclusions he did before opening the abdomen, that is, that it was a case of paralysis, the only question being whether it was due to a lesion of the spinal cord or the nerves of distribution. The fact that the patient had pain and diarrhoea would lead me to think that it

was due the second cause, that is, to some irritating substance which caused direct paralysis of the nerves of distribution to the intestine, and that is evidently the condition he found. Not having any history of what the man had taken or might have taken in the way of poison, of course that can only be conjectured. I think that, as far as the doctor's efforts were concerned, all was done that could be with the information he had. I think opening the abdomen was entirely justified, because he might have found something that he could relieve. As to the matter of hastening the death, a few hours more or less was of no practical importance.

Dr. TAPPEY.—I had the pleasure of seeing this operation and was very much interested in it. I noticed that the intestines were entirely distended. There was no line of demarcation between a distended and collapsed portion, as we generally find in occlusion of the intestine. The doctor made a very thorough examination of the whole intestinal tract, and hunted very faithfully for any mechanical obstruction, but failed to find any. It was impossible to return the intestines without opening them. I remember at the time a number present discussed the probable cause, and it seemed that paralysis of a part of the intestinal tract was the most likely reason. The operator of course expected that death would follow, but undoubtedly it was the proper thing

to do to open the abdomen and see what the condition was and relieve it if possible.

Dr. JENNINGS.—It seems to me that the clinical history and the operation and post mortem finding could be accounted for most rationally by a diagnosis of enteric infarction. I do not see anything to negative that diagnosis. It seems very strange that a paralysis could affect a limited portion of the intestine in that way. Unfortunately the post mortem did not reveal a plugged artery, but I think that the fact that the difficulty was in the circulation, and not in the nervous system, is well determined by the characteristics of the case.

Dr. MULHERON.—I have no criticism to offer, only commendations. It is certainly very pleasant to listen to a paper of this kind detailing as it does an unsuccessful case, the rule being to report only successful ones. The operator himself must derive great satisfaction from the close study, careful analysis and systematic findings. It seems to me clearly a case of paralysis of the intestine, and the local disturbance very much aggravated by the attempt at moving the bowels by drastic measures. I think Dr. Maass' caution in that particular is very timely, as the mistake is very commonly made. I had a case last summer in which laparotomy proved appendicitis due to a raw bean impacted in the appendix. The patient had been plied with cathartics by the mouth and rectum and used very roughly generally. When I saw him he was immensely distended and in a hopeless condition. I suggested opening the abdomen, and it revealed the condition I have indicated.

Dr. CARSTENS.—It seems to me that the sympathetic system of nerves has something to do with cases of this kind, the solar plexus perhaps, caused by a septic condition of the

intestines, or by cutting off the blood supply directly or indirectly. I would not like to give a positive opinion. I think there is something in the view of Dr. Jennings, but the distention would certainly indicate that the sympathetic system of nerves was affected. It seems to me that if there had been an embolus the doctor would have found it at the post mortem. I do not think we can blame the general practitioner, because often a good brisk cathartic will relieve the patient, but I think this treatment should not be continued too long. These cases should be seen by the surgeon sooner and not left until the patient is in articulo mortis.

Dr. IMRIE.—After hearing the details of the post mortem appearances and the history of the case, my first impression is with Dr. Jennings that it was due to a embolus of the superior mesenteric artery; but Dr. Maass examined the artery particularly, and with the absence of bloody diarrhoea I think that diagnosis is precluded. The presence of blood in the intestines and the stools is the characteristic sign of embolus, and great stress is laid on it in diagnosis, so I do not see any alternative but to accept Dr. Maass' diagnosis.

Dr. LONGYEAR.—There is one point in Dr. Jennings' remarks which I should like to refer to. He said that because the intestine was distended over a certain limited area it could not be due to paralysis. Now I think that fact shows it was due to paralysis. I had a somewhat similar case in a woman from who I removed a myoma of the uterus, and who, I knew, previously had a sympathetic nervous trouble. She died, and the intestines were found distended exactly in this manner. There was no evidence of inflammation, and they were not all distended and only slightly discolored.

Dr. MAASS.—I may say that as to the diagnosis of which Dr. Jennings spoke, it was at first my own impression, namely, that it was an obstruction of the artery. I had not time to make the post mortem properly, as the friends were in the room and the undertaker waiting, and it is possible that the embolus was lost. One

point against the obstruction of the artery was the inflammation. There was an accumulation of pus between the inner and outer coats of the intestine. I thought of poisoning from the mouth with some such poison as tyrotoxon, but the first symptom in these cases is vomiting, and there was none.

INTERNATIONAL PERIODICAL CONGRESS OF GYNECOLOGY AND OBSTETRICS.

Second Session—Geneva, Switzerland, 1st week in September, 1896.

GENEVA, August, 1895.

VERY HONORABLE COLLEAGUE:

The permanent Committee of the International Periodical Congress of Gynecology and Obstetrics has organized, through the intervention of a local committee, over which I preside, its Second Session which will convene in Geneva, during the first week of September, 1896.

I have the honor to hereby present you with the official programme of the questions which will be put to the order of the day, as well as the names of the referees.

OFFICIAL PROGRAMME.

Gynecology.

1. Treatment of Pelvic Suppurations.

Referees: Dr. Bouilly, Paris; Dr. Kelly, Baltimore; Dr. Zweifel, Leipzig.

2. Surgical Treatment of Uterine Retro-Deviations.

Referees; Dr. Kustner, Breslau; Dr. Pozzi, Paris; Dr. Polk, New York.

3. What method of closing the Abdomen presents the best guarantee against Abscesses, Eventrations and Hernias?

Referees: Dr. Granville-Bantock, London.

Obstetrics.

1. Relative frequency and most common forms of Pelvic Contractions in different races, groups of countries or continents.

Referees: Dr. F. Barnes, London; Dr. Dohrn, Königsberg; Dr. Fochier, Lyon; Dr. Kufferath, Bruxelles; Dr. Jentzer, Geneva; Dr. Lusk, New York; Dr. Rein, St. Petersburg; Dr. Pawlick, Prague; Dr. Pestalozza, Pavie; Dr. Treub, Leiden.

2. Treatment of Eclampsia.

Referees: Dr. Charles, Brussels; Dr. Charpentier, Paris; Dr. Halbertsma, Utrecht; Dr. Loehlein, Giessen; Dr. Mangiagalli, Milan; Dr. Parvin, Philadelphia; Dr. Smyly, Dublin.

As indicated by the number and choice of Referees, the Committee, desirous of provoking upon certain questions, investigations and debates as general as possible has endeavored to present the opinions of the principal schools for discussion.

We hope, honorable colleagues, that

you will honor the Congress with your presence, and take part in its discussions, or read original communications. Switzerland and Geneva particularly, has always felt especially honored when scientific men have seen fit to hold conference there. The welcome that has always been extended to them in the past by the authorities, the population and their colleagues, is a guarantee that the reception which will be given you next year will be worthy of you and of our traditional hospitality. The Committee of Organization will make all preparations, that members of the Congress and their families may be assisted in combining their journey to Geneva with other excursions in different parts of Switzerland.

REGULATIONS OF THE CONGRESS.

Article 1. The International Periodical Congress of Gynecology and Obstetrics, comprises Founders, Permanent Members and Members inscribed for one session.

The Founders and Permanent or Life Members pay a single initiation fee of three hundred francs (about fifty-nine dollars) which absolves them from the payment of any future dues.

Members only inscribed for one session pay a fee of 30 francs (six dollars) upon the receipt of which they will receive a card of Membership to the congress, entitling them to all privileges during that session, as well as a Copy of the Proceedings of the Transactions of the Congress.

Founders and Life Members must prove acceptable to the Central Committee on Organization before being regularly inscribed.

Gynecologists and Obstetricians whose names are accepted by the Central Committee, and whose applications are re-

ceived before the date of Meeting of the coming Congress will receive the title of Founders.

Article 2. Members of the Congress desirous of taking part in the discussions of the questions of the Official Programme are requested to inform the Secretary before the fifth day of July, 1896, stating definitely the questions they desire to discuss.

Article 3. Members desiring to present to the Congress original communications must forward the complete explanatory title of the same to the Secretary before May 5, 1896.

Article 4. Unannounced discussion of any paper will be limited to five minutes. Debators formerly inscribed in accordance with Article 2 will be limited to ten minutes.

Article 5. All oral or written communications must be in English, French or German.

Article 6. All manuscripts must be handed in to the Secretaries at the end of the session during which they have been read, and debators who have taken part in the discussions will be kind enough to remit to the Secretary a resume of their discourse.

Article 7. All communications to the Congress will be transmitted to the Secretary-General. The Committee of Organization, which resumes its functions immediately after the end of the Congress to proceed to the publication of the Transactions, will be privileged to decide upon the partial or total insertion of these communications.

Article 8. Students of Medicine will be able to obtain cards of admission upon presentation of their proper credentials, but will not be allowed to participate in the discussions.

Article 9. An Exposition of Gyneco-

logical and Obstetrical Instruments will be exhibited in the local of the Congress.

P. S. The Sessions of the Congress will take place in the University Halls, placed at our disposition by the Department of Public Instruction.

Sessions will continue from 9.00 to 11.30 a. m. and from 3.00 to 6.00 p. m.

Morning Sessions will be devoted to original communications; those of the afternoon to the Official Programme. If necessary the Committee will decide upon the forming of sections.

The date and location of the next Congress will be decided by vote after the termination of the last session of the present one of 1896.

The General Secretaries are : Dr.

Betrix, for Gynecology ; Dr. Cordes, for Obstetrics ; Treasurer of the Committee, Dr. Bourcart.

DR. FERNAND HENROTIN.

Secretary General for North America,
(Through whom all correspondence and business
will be directed),

353 La Salle Avenue,
Chicago, Illinois.

In the name of the Committee of
Organization :

The President : DR. PROF. VULLIET.

18, Avenue Du Mail,
Geneva, Switzerland.

P. S. In making application for
membership please give name and ad-
dress in full, as well as all titles.

REVIEW OF GYNÆCOLOGY.

INFANT MORTALITY DURING LABOR, AND ITS PREVENTION. By H. R. COSTON, M.D.

In the following study of causes of the death of the fœtus during labor and the best methods of saving its life, I shall consider,—

1. The diseases of the parents which may render the child more susceptible to the traumatism of labor or act directly on the child.

2. Abnormal conditions of the mother rendering labor difficult and endangering the life of the child, including accident to the mother during labor.

3. Abnormal presentations of the fœtus, and complications.

4. Diseases of the child and accidents attending its birth.

5. Meddlesome midwifery and its consequences.

It is well to introduce Ramsbotham's table of still births here, that it may aid us in the pursuance of this subject. Of 48,996 deliveries and 49,538 children, there were 1822 still-born children : of these, in 240 no cause is given, 478 were premature, 230 were putrid at birth, 253 were breech cases (20.8 per cent. of all breech cases), 97 were transverse (61.4 per cent. of cross cases), 50 were placental presentations (60.2 per cent. of placental presentations), 17 delivered by forceps out of 73 cases, 85 accidental hæmorrhage (53.5 per cent. of cases of accidental hæmorrhage), 18 under convulsions of 27 commencing before delivery, 42 under very lingering labor, 9 under ruptured uterus or vagina, 128 under prolapsed funis (7.04 per cent. of all still births), 11 under face presentation (61 per cent. of all still-births) :

30 were monstrous; 10 mothers nearly dead with cholera; 33 fright, anger, or accident to mother; 7 in twin-births, no other cause given; 1 in triplets, no other cause given; 1 born with abscess in neck. Although this table is old, it serves as a guide to the causes of foetal death and well deserves careful study.

Among systemic affections of the parents which cause the death of the foetus at or before birth, syphilis is beyond doubt the most common and at the same time an affection which yields good fruit to appropriate treatment. A very high authority states that eighty-three per cent. of premature or still-births are due to syphilis in one or both parents. When we add to this the fact that more than two-thirds of syphilitic children born to time and alive die within a short time after birth, it behooves us to attend more closely to such cases. When a pregnant woman is known to be syphilitic, or it is known that the father is a syphilitic, she should from the very beginning of pregnancy receive active antisymphilitic treatment. Iodide of potassium and the various mercurials should be given without stint. A very favorite prescription with me is,—

R Hydrarg. cum creta, 3 i;

Sodii bicarb., 3 ii;

Pulv. gentian, 3 iss;

M. ft. cap. no xxx.

Sig.—One after each meal.

The father should receive treatment before impregnating his wife, and the treatment should be kept up by her during gestation.

Tuberculosis of the mother may so reduce her that her child cannot withstand the necessary pressure incident to labor, or the mother may not have the strength necessary to deliver herself. Treatment available in such cases when called in at the hour of labor is to dilate the os and

deliver with forceps. This is usually easily done. Several years ago I was called to Miss T. H., who had been in labor three days. She was in the last stage of pulmonary consumption. The os was soft and easily dilated and the pelvis large, but the strength of the woman was so far exhausted that she was unable to deliver herself. I adjusted the forceps and easily delivered her of a living girl. She would undoubtedly have died undelivered had she not received help. She died in a few weeks of the pulmonary disease. When the physician is called in sufficiently early in such cases, he should make use of tonics, iron, cod-liver oil, strychnine, and the most nutritious diet.

Septicæmia, variola, typhoid fever, malarial fever, erysipelas, measles, scarlatina, cholera, acute rheumatism, recurrent fever, yellow fever, or any exhaustive disease of the mother may be the cause of still-birth. In cases where the fever runs extremely high and cannot be kept below 105° F., if the woman has advanced to the end of the seventh month of gestation, premature labor should be induced in the interest of the child. Typhoid fever should be treated by cold baths: malarial affections by quinine in large doses, in which opium and bromide of potassium should be combined to prevent the uterus taking on action. Septicæmia should be treated by antiseptic lotions to suppurating cavities, and by cathartics, diuretics and diaphoretics, and quinine. Erysipelas, by applications of carbolic acid and acetate of lead locally and tincture of iron internally in large doses. Acute rheumatism should be treated by the salicylates. In a few words, whatever acute disease affects the mother should be energetically treated, to prevent her temperature becoming sufficiently high to cause the death of the foetus.

In any case in which the mother is undoubtedly in a dying condition it is the duty of the attendant, if he can obtain the consent of the husband, to immediately perform Cæsarean section in behalf of the child.

Albuminuria and eclampsia call for more special attention. Eclampsia, depending, as it does, in the vast majority of cases, on albuminuria, should be prevented by appropriate treatment of the latter. The cause of death to the fœtus in eclampsia is most frequently intra-placental hæmorrhage.

The high temperature of the mother and circulation of impure maternal blood in the fœtus may also be a cause. Deficient supply of oxygen, due to the interference of the circulation in the placenta and cord, is another cause of death. The fœtal mortality ranges from thirty-seven to fifty per centum. The prophylactic treatment of this condition is of the greatest importance to both mother and child. It consists in placing her on absolute milk diet as soon as albuminuria is discovered, giving her diuretics and hydragogue cathartics. The treatment of the attack will depend upon the stage of labor. If the os uteri is sufficiently open, or can be dilated quickly to a sufficient extent to allow the application of forceps, this is of first importance. The physician should give a hypodermic of morphine, or give chloroform or chloral and bromide of potassium in large doses. Ether should not be used in the presence of albuminuria. *Veratrum viride* has many strong friends. It should be given in large doses: 25 drops of Norwood's tincture is claimed by some to be a specific. It may be given hypodermically. Dührssen recommends incision of the cervix as soon as the internal os is dilated. In seven cases delivered after this fashion he only lost one

child, which was already dead before operation. If the os is not open, it should be distended as rapidly as possible, making use of manual dilatation.

Pilocarpine in large doses has been used with excellent results. Of medicinal treatment, that by morphine is possibly the best. Under its use 68.6 per cent. of children were born alive, and where morphine was not used only sixty-four per cent. were born alive. Dührssen's method gives much better results. Cæsarean section has been recommended for this condition, but it is scarcely justifiable, especially since such good results have been obtained from morphine and Dührssen's method. The one great point to bear always in mind is to empty the uterus as speedily as possible. When one is compelled to wait for dilatation to occur, the remedies named should be administered, and in plethoric cases bleeding may be performed, though I think that, as a general rule, morphine or chloral or *veratrum viride* will, in the hands of the general practitioner, give better results.

Some preparation of ergot should be used hypodermically to produce uterine contraction in case of rapid delivery. The one point to be kept constantly before the physician's mind is to empty the uterus as rapidly as is safe for the mother's tissue, both in the interest of herself and of the child.

In any case of sudden death of a pregnant woman who has passed the sixth month, speedy Cæsarean section should be done. Many lives have been saved by this means. Even if the woman has been dead two hours it can do no harm, and cases are on record where the life of the child had been saved after the mother had apparently been dead two hours. The explanation of this may be that

the mother did not cease to breathe as early as the attendants thought. Neither should one refrain from doing laparotomy because the foetal heart cannot be heard, for cases occur in which it is impossible to hear the foetal heart sound, although the child is alive and healthy.

By reference to the table given it will be seen that twenty-five per cent. of still-births were premature. While doubtless many of these were due to syphilis, yet it only shows that the physician should give the patient active treatment, as previously outlined, and endeavor to carry her to time. When a pregnant woman is threatened with a miscarriage, she should immediately be put to bed, given a full dose of opium or one of its alkaloids, and kept under it until the tendency of the uterus to contract is passed. In cases entirely too common, where the woman is in the habit of miscarrying at the sixth, seventh, or eighth month, thus giving birth to a child dead or so enfeebled that it died shortly after birth, she should be put to bed as the time approaches at which she usually miscarries and given sedatives. Chlorate of potassium has been highly recommended in cases of fatty degeneration of the placenta. I have had excellent results from the following:

R Fl. ex. piscidia ery.,

Fl. ex. viburn pru., of each, ʒi. M.

Sig.—Teaspoonful every to four hours.

Premature delivery is, however, sometimes demanded in the interest of the child. In cases in which a woman is in the habit of giving birth to dead children at term, from the following causes, premature labor is demanded: anæmia, degenerative change or faulty development of placenta, alterations of umbilical cord, cardiac and respiratory diseases.

enormous distention of abdomen from ascites, hydramnion, pernicious anæmia, multiple pregnancy, uncontrollable vomiting, hæmorrhage from placenta prævia (will be considered further), chorea, convulsion, nephritis, in many, if not all, of which the child shares the danger, and in such cases premature delivery is indicated.

In any case in which the life of the mother is despaired of, labor should be induced to give the child a chance of life. Premature delivery will be found of but little benefit where the woman habitually gives birth to a dead child from organic disease of the fœtus.

Atresia and rigidity of the os uteri are to be overcome by the use of chloral and the relaxing drugs, of which none are better than ipecac. Warm vaginal injections, used freely, are of great benefit in these cases. Prolonged gestation is sometimes the cause of the death of the fœtus. No woman should be allowed to carry her child more than ten calendar months from the last menstruation. This gives time for conception to have taken place on or about the menstrual period after the one that appeared. Five calendar months after the first movement of the child is felt should be the limit of time when the time of first movement is known.

Simple atresia of the os uteri may be overcome by multiple incisions or by a single or bilateral incision of the os. It should not be allowed to remain so long an obstacle to labor as to cause the death of the fœtus or exhaustion of the mother. Atresia of the vagina, vaginal bands, persistent hymen, or atresia of the vulva call for incision. Rigidity of the perineum may be overcome by the forceps or incised. Edema and thrombosis of the external parts call for incision. Vaginal hernia is usually easily re-

duced; but should it be large and adherent, so that it cannot be reduced, and the woman at term. Cæsarean section may be called for, both in the interest of the child and the mother. Hirst relates a case in which he induced labor at the seventh month in order to avoid Cæsarean section. Cystocele may cause a delay of labor. The contents may be evacuated with a catheter, and the prolapsed vaginal wall itself will not be sufficient to cause trouble; but should the labor be delayed because of it, the forceps should be applied and delivery accomplished. Large calculi are best removed by vaginal cystotomy. Impacted feces should be removed by rectal irritation or by the spoon. Fatty growths and polypi of the vaginal wall will, when large enough to obstruct labor, have to be removed by the knife and ligature. Large irreducible labial hernia should be operated on before labor, if the physician is called in before labor begins; otherwise it must be done during labor, if it is so large as to obstruct labor. Wounds of the mother of sufficient gravity to bleed her to death, if the source of the blood cannot be reached, calls for immediate delivery: by forceps, if they can be applied: if not, by Cæsarean section. Tetanic contraction of Bandl's ring,—hour-glass contraction, if it does not yield readily to manual dilatation under chloroform, demands Cæsarean section in the interest of both mother and child. Uterine inertia calls for strychnine, quinine, hot infusion of red pepper, and hot vaginal douches. Ergot may be given very guardedly. The effects on labor of shortening the round ligaments are usually *nil*, but Chaleix reports a case in which the child was born dead, that may be attributed to the malposition of the uterus caused by shortening only one ligament. Change of position of the woman in

such a case would probably result in change of the relation existing between the uterus and the pelvic outlet. If delivery cannot be effected by changing the position of the mother, or by turning, or by the use of forceps, or by a combination of these means, Cæsarean section should be performed before the death of the fœtus from asphyxia due to prolonged labor.

For rupture of the fundus of the uterus and recession of the child within the abdomen there is but one treatment worthy of mention,—viz., instant laparotomy. The choice of methods of dealing with the uterus in such cases it is not my province to consider here. In rupture of the lower segment, where the head can be grasped with forceps, the child may be delivered by forceps, the physician dealing with the uterine wound as may seem best after delivery is effected. If the child has receded into the abdomen, so that it cannot be readily removed without further damage to the mother, laparotomy should be immediately performed. Malignant disease of the uterus demands laparotomy, with total extirpation of the uterus, because if it is of the body of the womb, it may cause a rupture, and if of the cervix, it may bleed the woman and child both to death before labor can be terminated *per vias naturales*.

Cancer of the vagina or vulva must be dealt with *pro re nata*. If it is so situated or is so extensive as to be likely to obstruct labor sufficiently long to asphyxiate the child or bleed to a dangerous degree, I believe Cæsarean section to be the most feasible method of dealing with it. A greatly elongated cervix may so obstruct labor as to require Cæsarean section. Fibroid tumors of the uterus, when they are large enough, or are so situated as to obstruct labor, re-

quire Porro's operation. A pedunculated fibroid of the os uteri obstructing labor may be removed per vaginam in some cases. Of one hundred and fifty Porro Cæsarean operations, done by as many different operators, eighty-one mothers recovered. Of the first fifty, thirty-six died; of the second fifty, twenty-four died; of the third fifty, only thirteen died. Thus, under the present aseptic surgery, the mother has a better chance for recovery (and the child almost its only chance of life) under this operation than under the let-alone method. The uterus is liable to rupture itself, or bleed mother and child both to death, or to so prolong labor as to cause the death of the mother from exhaustion and the child by asphyxia.

Ovarian tumors and tumors of the broad ligaments discovered before labor should be removed by laparotomy. Dr. Gordon, at the Fifth Congress of Russian Physicians, gave statistics of one hundred and seventy-six cases in which tumors were removed during pregnancy. Of these, one hundred and sixty-four mothers recovered and one hundred and twenty-two carried their children to term.

Delagenière says that pregnancy is not compromised by laparotomy, but that it is compromised by the tumor, and failure to remove it subjects the patient to the dangers of peritoneal accidents and abortion, which are as grave as those connected with laparotomy. If the existence of the tumor is not known until labor is in progress, it should, if it is so situated as to obstruct labor or be liable to rupture, be removed at once.

If the patient's consent to laparotomy cannot be obtained, it may be tapped per vaginam or through the walls of the abdomen.

In considering methods to be made use of in cases of deformed pelvis, it

will be necessary, when considering any operative measure, to also weigh the mother's chances of recovery, for she is not to be needlessly sacrificed: neither is the child to be sacrificed for her, but both given a fair chance of life.

Craniotomy is only mentioned to be condemned. Craniotomy or embryotomy on a living child has no place in the science and art of obstetrics. It is a relic of the past, which the sooner the physicians of to-day and all time to come forget, the better off the mothers and unborn children of the world will be. The maternal mortality attending the operation of craniotomy—take the great masses of the physicians in the country and in small towns as well as in larger towns and cities—is as great as that attendant upon aseptic Cæsarean section done before the woman has exhausted herself, and many—at least seventy per cent.—of the children thus sacrificed would be saved by symphyseotomy or Cæsarean section. Within the last few months I have known three craniotomies performed by general practitioners, with a loss of two of the mothers and a vesico-vaginal fistula in the other one. Two of these mothers were pluriparous women, and could have been delivered by turning or sympheseotomy easily, and the primipara could not have done worse than die under Cæarean section, and her helpless unborn child would have had an opportunity of life: but as it was, they were sacrificed at the shrine of ignorance. Away with craniotomy!

Of the measures to make use of in cases of narrow pelvis, we have a choice between several. Narrowing of the pelvis or shortening of the conjugate diameter is to a certain extent a relative term. A very small child may, at full term, pass through a pelvis unharmed that a well-grown

child at the end of the eighth month could not be pulled through without undue force by the use of forceps. It is meet, therefore, that we lay down some general rules regarding the length of the conjugata vere by which we are to be governed in the various procedures about to be considered. The following may be given as the diameters requiring the different operations necessary in various degrees of deformity: below sixty-seven millimetres, Cæsarean section; from sixty-seven to eighty-five millimetres, symphyseotomy; above eighty-five millimetres, forceps, or turning with forceps to the after-coming head, or either combined with labor induced at the thirty-sixth or the thirty-eighth week.

These are only given as general rules to be governed by in the vast majority of cases, but each case must be, to a great degree, a law unto itself, the physician considering the size of the child's head as well as the pelvic diameters; for an unusually small child might be easily delivered through a pelvis of less than eighty-five millimetres; while, on the other hand, an extra large one could not be delivered by symphyseotomy through a pelvis of sixty-seven millimetres without doing fatal injuries to the child and possibly to the mother. This is a factor which is never to be lost sight of. The dangers to the child attendant upon the use of the forceps are too great compression of the head and too much strength exerted in traction.

Only a very moderate amount of compression should be made use of. After the blades are in position and closely clasping the head, they may be pressed together one-half inch more at the ends of the handles (supposing one to be using Elliot's forceps); beyond this I think one is scarcely justifiable in going, but

should resort to symphyseotomy or other operation, according to the diameter of the pelvis.

All cases that cannot be delivered safely by the use of forceps, or by turning and forceps, should be delivered by symphyseotomy, Cæsarean section, or premature delivery. It now becomes necessary to determine what procedure to make use of, choosing among these three operations.

The infant mortality in premature delivery is frightful. At least fifty per cent. are born dead, and thirty per cent. of those born alive die within a few months after delivery. Professor Pinard, at the Eleventh International Congress, gave the following statistics for the years 1892 and 1893: thirty-eight symphyseotomies, thirty-six living mothers and thirty-four living children; induced labor, sixty-four cases, sixty-two living mothers and thirty living and thirty-four dead children. Commenting further on this, Professor Pinard said that of symphyseotomy children, seventy lived and six died; and of premature children, ninety-two lived and thirty-six died. He condemns embryotomy, and says that it should be replaced by Cæsarean section, symphyseotomy, or induced labor.

C. P. Noble considers the danger to the mother about equal in induced labor and symphyseotomy, while symphyseotomy at term gives the child at least sixty per cent. more chances of life than induced labor.

In 1892 there were eighty-five symphyseotomies done in twelve different countries of the world, with eleven maternal and twenty-six fetal deaths (Harris's personal communication). Most of these were operations done by men who had never operated before or even seen the operation performed. With the increasing knowledge and the performance of the operation before exhaustion of

the mother takes place or the child becomes asphyxiated, the mortality of the mother and child should be reduced to almost *nil*.

Hirst has had four symphyseotomies with no deaths. I would lay it down, therefore, as a law that in any case in which it is necessary to deliver the woman by induced labor or symphyseotomy, to invariably choose the latter, and to combine the two operations when it is doubtful if a living child can be delivered at term by symphyseotomy.

All cases that cannot be delivered by the above means are to be delivered by Cæsarean section or some of its modifications *at term*. Of the conduct of the physician in cases coming under his care before viability of the child, and in which it is impossible to deliver a living child at or beyond the seventh month by symphyseotomy, it is not my province here to speak at length, but I should be governed a great deal by the wishes of the mother, and if she desired an heir, I should let her carry her child to term and do an aseptic section.

Deformities produced by rachitis, osteomalacia, or exostoses of the pelvic wall will demand forceps, symphyseotomy, or Cæsarean section to save the child, or child and mother, according to the deformity of the pelvis produced by the disease.

Fatal deaths from morbid conditions of the placenta are not rare. Of degenerative diseases of the placenta we have no means of diagnosis save the habit of miscarrying at certain times of pregnancy. When a woman is known to miscarry at, say, the seventh or eighth month, and the placenta is always found diseased, in a subsequent pregnancy she should receive treatment suitable to the cause found. If syphilitic, she should have mercury and iodide of potas-

sium; if it is a fatty degeneration, she should be given chlorate of potassium: if due to an endometritis, treatment before conception and rest in bed with sedatives after conception.

Accidental hæmorrhage demands immediate delivery. If the os is sufficiently open, apply forceps and deliver at once; if not open, but dilatable, dilate with all possible speed and apply forceps. If the os is rigid, Cæsarean section is justifiable. It is better to do it *ante-mortem* than *post-mortem*. In placenta previa I do not think it best to try to carry the woman to term, but with the first hæmorrhage to deliver her if she has reached the end of the seventh month. In such cases the vagina should be very tightly tamponed until the os begins to dilate. A Barnes bag should then be introduced and the os dilated as rapidly as possible. As soon as the dilatation has become sufficient, detach the nearest side and turn the child, bringing down a foot. Deliver as rapidly as is compatible with the mother's safety.

A very short funis might be the cause of the death of the fœtus. I once had a case in a primipara in which a very short cord was wrapped around the neck, and before I could remove it, after the head was born, a powerful uterine contraction took place, rupturing the cord and delivering the child. Had no one been present to catch up and tie the funis, the child would most likely have bled to death. Knotting of the cord, caused by the child passing through a loop of the funis, may so obstruct the fœtal circulation as to cause the death of the infant. We have no means of diagnosing this, hence cannot treat it. Circles of the cord about the neck of the child may be drawn so tightly as to obstruct the circulation sufficiently to produce the death of the infant.

The loop of cord should be drawn down and passed off the neck as soon as it can be reached by the index finger. Pressure upon the cord caused by its dropping down between the presenting part of the child and the mother may cause the death of the fetus. Such prolapsed funis should be replaced whatever the presentation. In the absence of a better instrument, this may be done by a loop of tape passed through a ring in a long wire, and the cord caught up in this and carried up into the uterus, and the funis dropped over some portion of the child. In breech cases it should be drawn well down and passed to one side and carefully watched, and as soon as the pressure becomes dangerous deliver at once.

The placenta, when situated low in the uterus, may be detached by the oncoming shoulders. We have no means of diagnosing this unless the child should be observed, through a thin abdominal wall, to be in spasms, when the condition might be suspected and forceps applied and labor quickly terminated.

Detachment of the placenta in head-after cases may cause the death of the fetus, and should the child begin to have spasms, this condition or pressure upon the cord should be suspected, and in either case labor should be terminated immediately.

Premature rupture of the membranes may be the cause of asphyxia from the increased force exerted upon the child's head. Rupture of the membranes should be avoided until the os uteri is fully dilated, and rupture should usually be allowed to occur spontaneously. Should it occur spontaneously and the os rigid and undilated, give a large dose of hydrate of chloral, which, in my experience, is the best drug we have for relaxing a rigid condition of the os and at the same time allowing labor to progress.

Emetics, especially ipecac, and bleeding have also been recommended in such cases. These cases very often have to be terminated by forceps, though occasionally the membranes rupture and the waters escape many days before labor, and the labor is quite easy. In another article I have published a case in which the membranes ruptured and the liquor amnii escaped forty-six days before labor, yet the labor was very easy, and a large, healthy, well-formed boy was born.*

The child being born with a caul might be the cause of the death of the infant. Such cases simply demand an immediate rupture of the membranes.

In any vertex presentation, labor having been in progress four hours after the full dilatation of the os, the forceps should be applied and the child delivered. I firmly believe that more harm is done the child by the continuance of labor and delaying application of forceps than is done it by a skilful instrumental delivery.

Occipito posterior cases may, from delay, require the application of forceps after engagement occurs; before engagement, turning is usually the better method. Brow and anterior fontanelle presentations should be flexed if seen before the head becomes impacted. The vectis may be of use in flexing these cases or in causing rotation into an occipito-posterior case. If the head has become impacted and cannot be flexed or rotated, so that it will become either an occipito-posterior or a mento-anterior position, symphyseotomy should be done if the child is living. Turning may be done in the first stages. Impacted mento-anterior cases, it seems to me, could be saved by symphyseotomy. There is certainly no more risk to the

* *New York Medical Journal*, May, 1889.

mother involved in an aseptic symphyseotomy than in a craniotomy, and if the child is living it should by all means have this opportunity of securing life.

Ear presentations, when seen early, should be converted into vertex cases, but if not seen until the uterus is contracting vigorously, it may be necessary to convert into a breech.

In any head case in which the head fails to recede after each pain, showing that it has become impacted, the forceps should be immediately applied and the labor terminated.

Mento-anterior cases usually give no trouble. Should it become necessary, the forceps may be adjusted and assistance rendered nature.

Mento-posterior cases must be converted into vertex by flexion or must be turned and converted into a breech. Should the case be so far advanced when the obstetrician reaches it that neither version nor flexion can be effected, and the child living, open the symphysis pubis and apply forceps, if necessary.

Cross presentations must be turned. When this cannot be effected, and the child is living, do Cæsarean section. There is no more danger to the mother than from embryotomy, and the child has a chance of life. I have known embryotomy done on the second child of twins in a woman who had previously given birth to five or six children, she dying during extraction of the child from loss of blood from the traumatism inflicted. This case, I think, could certainly have been turned. At any rate, the woman could only have died during Cæsarean section and the child would have been saved.

Twin cases usually give no trouble, but should one of them be crosswise of the pelvis it should be instantly turned. Should locking of the heads occur, the first child would have to be

sacrificed to the second or Cæsarean section done; the latter of which I do not think would be advisable in such cases, inasmuch as the child is usually very feeble and not calculated to live.

The danger in breech and footling cases is in pressure on the cord producing asphyxia, and in traumatism to the head causing intracranial hæmorrhage, and in the slipping of an arm over the head, and in the contraction of the os around the neck of the child after the body is born. Pressure on the cord and its management have already been considered. We should avoid making too great pressure on the head, but merely hold it steadily in the pelvis. Too much compression must not be exerted in case forceps have to be used on the after-coming head. When the breech has passed the perineum, the accoucheur should pass his finger up along the ventral aspect of the child and draw the arms down. Sometimes this can be effected by rotating the child when it cannot otherwise be accomplished. If the os contracts on the neck, anæthetize the patient profoundly. This will, as a rule, relax the os so that delivery may be completed. Very occasionally it may become necessary to incise the cervix uteri. This may be usually avoided by abstaining from the use of ergot.

Various accidents may occur to the child to endanger its life, such as breaking of arms or of legs in the different procedures made use of to effect delivery in malpresentations. Care should be exercised to avoid as much as possible all such accidents. An extra large child may so retard labor as to cause its death. When the pelvis is roomy, the case should be dealt with as previously indicated when speaking of delayed labor. Should it be impossible to deliver by forceps, do symphyseotomy, and ad-

just the forceps and complete the delivery.

Ascites, overdistention of the bladder, hydrothorax, or pyothorax in the infant will call for the use of the trocar and canula. Hydrocephalus will usually adjust itself to the pelvis, and be delivered without interference on the part of the physician, though it may so retard labor as to call for the use of the trocar and canula in behalf of the mother.

Spina bifida will usually give no trouble, though, if it is very large, it may have to be punctured. Usually it can be reduced by gentle pressure with the hand, if it can be reached.

Anchylosis of the joints can only be dealt with by Cæsarean section or by forcible fracture of the ankylosed parts. I prefer the latter.

Nothing can be done for most intrauterine diseases, except syphilis, which has already been considered.

Encephalocele is to be carefully protected from traumatism. I know a boy, now seven years old, with an encephalocele as large as a hen's egg at the outer and inferior angle of the os frontis at its junction with the parietal, who has perfect health and is of fairly good intelligence. Such cases are not hopeless.

Ossification of the bones of the cranium may reach such a degree as to obstruct labor and cause the death of the fœtus. The head should be delivered by forceps, if possible: otherwise do symphysectomy.

The various deformities and monstrosities may be a cause of fetal death, but each case must be a law unto itself. Fortunately, most monsters are born for only a short life, and we should look chiefly to the mother's good when brought to deal with such a case.

Ante natal rickets cannot be diagnosed, but should a pregnant woman present herself, giving a history of

still-born children from rickets, she should be put into the very best hygienic condition, receive abundant nutritious food, have plenty of outdoor air and exercise, with tonics of iron, quinine, gentian, cod-liver oil, and lime salts.

Asphyxia neonatorum is chargeable with the death of hundreds of children every year. Properly treated, the vast majority of asphyxiated infants can be resuscitated. There is a large number of methods that may be made use of, and almost any of them, when used persistently, will give the results desired.

The method of Marshall Hall, Sylvester, or Scholtze will, if carried out properly, give the child an opportunity of life. Byrd's method is excellent and may be described in a few words, as follows: Place the hands under the middle of the back, the fingers parallel and thumbs pointing to the child's head. Allow the arms to fall back on the thumbs and the body to bend back. Raise the arms and fold the body in the diaphragmatic region to the angle of forty-five degrees. Reverse the operation and repeat twenty or twenty-five times per minute.

My favorite method of dealing with obstinate cases is to wipe the child's mouth clean, apply my mouth to the child's mouth, and blow forcibly into it, meantime making firm pressure into the child's stomach with one hand and slightly raising its head with the other hand, and having the nurse raise its arms over the head as I blow into its mouth. The next step is to lower its arms, turn it on its face to allow mucus to run out of its mouth, and make firm pressure on the chest to expel the air. Repeat fifteen or twenty times per minute. The above method has never failed me, but the great desideratum in that, as in any other method, is to

persist. I have resuscitated a child that apparently had not breathed for half an hour after birth. A few cases will require persistent work for an hour or more, but we should not despair of life in such cases. One life is worth many hours of hard labor, and the gratitude of the young mother shown the physician in such cases is—to say nothing of his own feelings—sufficient remuneration to induce him to do his utmost to save the child.

The method by the use of the catheter in the trachea, advocated by some, is no better than mouth-to-mouth insufflation, and there is danger of doing damage to the vocal cords. Mild cases will yield to spanking, dipping into warm and then cold water, or the applications of spirits of camphor to the nostrils and on the body.

Premature children should be rolled in warm cotton and kept protected from the chill of the external air several days.

Give all children the breast of the mother within two hours after birth.

Meddlesome midwifery is often the cause of the death of the fœtus by causing excessive uterine action and irregular contractions before the os is dilated. Premature rupture of the membranes, awkward attempts at turning, pulling upon the body sufficiently hard to break the neck in head-after cases, all come under this heading and should be avoided. Ergot should rarely, if ever, be given before delivery. It may so interfere with the circulation in the uterus and placenta as to cause the death of the fœtus from asphyxia or paralysis of the foetal heart, or it may cause a rupture of the uterus, and is very prone to give rise to hour-glass contraction.—*The Therapeutic Gazette*, Sept., 1895.

CONTRACTED BLADDER TREATED BY GRADUATED FLUID DILATATION. By MAYO ROBSON, F.R.C.S.

The following instance is one of a troublesome class of cases which, until the matter was taken up by the late Dr. Matthews Duncan, were considered incurable, and even yet, the method of treatment he advocated is not so frequently followed as it perhaps might be.

On Jan. 17, 1890, I received the enclosed communication from a medical friend: "I was consulted yesterday by a single woman, aged thirty, who had suffered for years from complete incontinence of urine. On attempting to pass a sound, I could get it no further than the length of the urethra, when it impinged on a calculus. I was unable to pass the sound round it, the bladder seeming to be firmly contracted over it, therefore I am quite unable to judge whether it is a very large stone or a smaller one impacted near the inner opening of the urethra. My attempts to get round it give rise to so much pain and some bleeding, that I did not persevere, as she was not under an anæsthetic. It is evidently a case for operation."

The following notes are taken from my Hospital Record:—A. L., aged thirty-five, admitted to the Leeds General Infirmary, January 23, 1890. She stated that her symptoms started twelve years previously, when she had great pain in the loin and at the neck of the bladder: at the same time she had to pass water very frequently, the pain and frequency of micturition having since persisted. She had occasionally passed small fragments of stone, the largest about the size of a coffee bean. For seven years she had had nocturnal inconti-

nence of urine and for two years complete incontinence day and night. During the latter part of the time she had been comparatively free from pain. The urine was horribly offensive, alkaline and loaded with pus.

On January 31, the patient was etherised and the pelvis examined bi-manually in order to ascertain the size of the bladder, as the passage of the sound gave very little information, since immediately on entering the bladder it was arrested by coming in contact with hard calcareous material. Bi-manual examination revealed the fact that there was practically no bladder, it being merely represented by a small hard lump about the size of a walnut. The ureters were apparently free from disease and there was no enlargement of the kidney. The urethra was dilated by a Weiss' dilator so as to admit the little finger, when it was found that the minute cavity was lined by phosphatic concretions, which were thoroughly scraped away by a Volkmann's spoon, the bladder then having a capacity of only half an ounce, and although the patient was under an anæsthetic, no more could be injected by any reasonable amount of force. The incontinence persisted after the operation, and the bladder was washed out daily with boracic lotion, on each occasion the urethra being compressed around the nozzle of the syringe and moderate force being used in order to increase the capacity of the organ. After a few days the incontinence ceased and the patient was told to hold her urine as long as possible.

On February 8, she could hold it for half an hour.

On February 20, as the patient had made no further progress, ether was given and the bladder distended with boracic lotion, when it was found that the capacity had increased to two ounces.

On February 26, considerable improvement had taken place, as she was able to retain her urine for three hours with some effort, and the quantity retained was four ounces.

On March 7, she held her urine for four hours. The bladder was again somewhat forcibly distended, but without an anæsthetic: the capacity, however, could not be increased beyond four ounces, and the next day the patient had pain in the hypogastrium with vomiting and considerable irritability of the bladder. This decidedly retarded progress, and although on March 26 the capacity of the bladder was found to be still four ounces, there was very frequent micturition and slight elevation of temperature. Further dilatation was therefore not attempted, as it was thought that the bladder, having now some capacity, voluntary retention of urine would secure gradual dilatation, and by April 17 she was able to retain seven ounces of urine. Up to this time the patient had been kept recumbent, as it was found that she could hold the urine much better when in bed. At the end of April her general condition was very much better than it had been for years and the voluntary power of retention was good.

On May 14, she was able to hold seven ounces of urine even when up and about, and she had not to micturate for five hours.

On May 24, she was discharged, as she could hold eight ounces of urine without discomfort and as her general health was good and the urine normal. The progress of the case throughout was most satisfactory, but it might have been quicker if, after some vesical capacity had been obtained, voluntary retention had been more relied on, as the last dilatation retarded the progress of recovery for a time by setting up irritability of the bladder.

In order to keep the urine aseptic

while undertaking any operation on the urinary passages, I usually order the patient to take boracic acid or salol internally: in fact, this has become so much a practice with me that, unless there is some contra-indication, urinary cases admitted for operation are at once ordered five grains of boracic acid and five grains of salol, to be taken in wafer paper thrice daily, and this practice has, I feel sure, done much to abolish post-operative urinary fever. It will be seen that the method pursued is on the principle laid down by the author of the operation, though in details and in procedure it differed from any of his cases, and in fact every case of this kind must be a law unto itself, for it will be quite possible, by trying to make too much haste, to bring about death rather than recovery. In no class of cases would the motto—*Pestina lenta*—hold better than in this.—*British Gynecological Journal*, 1895.

TOXIN-THERAPY IN SARCOMA. By DR. J. F. SCHMITTLE.

I will not burden you all this evening with any lengthy report. My purpose is simply to relate my experience with the toxins of erysipelas and bacillus prodigiosus in the treatment of two cases of sarcoma.

So far, the use of these toxins in my hands has not been followed by excellent results. Still, as I have only used them in two cases, and only for a comparatively short time at that, I am not capable of saying that they have not proved themselves to be a valuable help in our fight with this serious growth, since quite eminent men in the profession report wonderful results attributable to their use.

To begin with, this treatment is not entirely without danger, as deaths have resulted from it.

One of the two cases in which I am using it was inoperable: the other was not so very extensive at the beginning. In the first and worse case I think there is a constant, steady but slow improvement, while in the second the condition became aggravated. Following are the histories of the two cases, with a sufficient clinical record:

The first is that of a woman fifty years of age. I saw her for the first time at the hospital, five years ago, with a large, foul-smelling, spindle-celled sarcoma of the left breast, which was removed, after which she made a rapid recovery.

Four years later there was a return of the growth: it was again thoroughly removed, and she apparently made another good recovery.

About two months ago she returned to the hospital, a year having elapsed since the last operation. This time she was beyond the aid of the knife. The growth had returned near the old cicatrix and now extended over the greater portion of the left wall of the thorax, into the axilla and arm portion, and under the clavicle into the supraclavicular region. There was a large opening near the axilla where it had ulcerated through the skin. Her arm was very œdematous, and she had no use of it: it was as if bound down to her side. She suffered some pain, perhaps due to pressure, and her general condition was very much undermined.

First inoculation was made on the 12th of July. I might here state that the inoculations were always aseptic. The parts were first thoroughly cleansed, and the remaining punctured wound covered with collodion. They were made deep into the substance of the growth and each time into a different part.

Twenty-three drops of the toxins, with the same amount of sterilized water was injected generally every

other day. Up to the present time patient has had eleven inoculations.

Two hours after the first inoculation temperature was 100 1-2 deg., and patient felt comfortable. Next morning there was some localized redness, and quite a crop of vesicles had formed about the seat of injection.

About one hour after the second and all succeeding inoculations, she had a violent chill, which lasted almost always half an hour or more. The temperature would then go up to between 103 and 104 deg., and unless reduced by an antipyretic, would remain there for some time and gradually go down.

Since the beginning of this treatment, temperature has never been down to normal. Pulse is always rapid and small, between 90 and 140 to the minute.

At times, shortly after the injections, it was intermittent, showing that the system was fully under the toxic effect of the toxins. Patient at all times complains of being extremely weak, some days more so than others, and on this account I sometimes had to postpone the inoculation a day or more.

As regards the appearance of the growth now, I think, as stated in the beginning of this article, there is some improvement.

I can not appreciate any reduction in size exactly, but the open surface has healthy-looking granulations.

She has no pain, and is able to use her arm more freely. As patient is anemic she takes a ferruginous tonic, Strychnia sulphate, hypodermically, and alcoholic stimulants are given continually to keep her buoyed up.

At present writing I have discontinued the inoculations, but only temporarily, on account of feeble condition of patient.

I intend to resume them as soon as patient's condition will permit it.

The second case is that of a young lady nineteen years of age. I saw her for the first time two years ago; at that time she had a small round-celled sarcoma on the side of her neck, which I removed. About eight months after this it made its appearance again, and was once more excised.

A year and a half after this she came to me again; she had a return of the growth in the cicatrix, with a fungous mass protruding through the skin about the size of a hen's egg.

She said a short time after the second excision the growth appeared again, and she fell into the hands of a well-known cancer doctor; he applied a salve and the enlargement was the result.

I operated on her again, but in time it returned.

As sarcomatous tumors of the neck almost invariably return, for it is impossible in these cases to remove sufficient of the surrounding healthy structures, I thought this to be an excellent case to treat with toxins.

She received the first inoculation on July 19, and has had altogether seven.

I commenced with fifteen drops, on account of her age, and gradually ran it up to the maximum quantity of twenty-three drops.

About two hours after the first inoculation she had a severe chill and temperature went up to 103 deg. She became very sick at her stomach, and could not retain anything for twenty-four hours. Her pulse became so miserable that she had to be stimulated hypodermically. Next day she had an intense herpetic eruption about eyes, nose and mouth.

After each and every inoculation she had a chill, but temperature never went as high as after the first. She suffered severe pains for several hours after each one. The case became aggravated soon after the inoculations

were started. There was a rapid increase in the size of the growth, and four new ones made their appearance in the surrounding fissures.

Now whether this was strictly due to irritation produced by the injections or was merely a coincidence, and the growth would anyway have taken on these malignant characteristics, I am not able to say as yet.

However, when the patient learned of this, she requested me to discontinue the toxins and operate on her, which I accordingly did.

I hope to cure this case eventually, if possible, by persistently operating, as was done in the well-known case of Prof. S. D. Gross. He subjected a single woman to twenty-two operations in four years; the number of recurrent tumors removed was fifty-one, and varied in size from an almond to a hen's egg. Ten years and nine months after the last operation she was in perfect health.—*New Orleans Medical and Surgical Journal*, Dec., 1895.

EXTERNAL VS. INTERNAL EXAMINATIONS IN OBSTETRICS. By E. A. HARRIS, M.D.

No branch of medicine is treated with so little respect as obstetrics. For this there are many reasons. Parturition being a physiological process, most cases are so thoroughly normal as to dampen the enthusiasm of the most ardent inquirer for the unusual. However, emergencies and difficulties arise frequently which must be confessed that the average practitioner is lamentably incapable either of recognizing or treating. The unsatisfactory vaginal examination method is in a great measure responsible for this serious imputation. Seeing a case early for the first time, the physician makes his customary vaginal examination and

learns almost nothing. With indefatigable patience he concludes to "let nature do her work." Should the parturient be endowed with "nature's perfect form and perfect organs, with perfect functions," then he becomes a howling success as an accoucheur. Should something fail to happen, however, after having wasted golden opportunities, he becomes inquisitive and endeavors to discover things of which he should have been cognizant hours before. He alleviates the sting of a guilty conscience with the consolation that he has indulged in no "meddlesome mid-wifery," forgetting that the sins of omission are as censurable as those of commission. Nothing is to be more severely condemned than this exceedingly lax method in vogue relative to accouchement. Twenty years ago such a thing was justifiable, but today, with a method of making diagnoses so simple, so certain, so safe, we are exceedingly reprehensible. In speaking of external examination I shall confine myself to abdominal palpation. We have valuable adjuncts, however, both in auscultation and pelvimetry. By locating fetal heart sounds we confine our diagnosis of position and receive the only index to condition of child in utero. There we find another example of the exceedingly indulgent methods in obstetrics. Often we hear physicians say that they have never heard of fetal heart sounds: indeed, that they never listened, although they had been practicing five, ten or fifteen years. They could have given you the latest wrinkles, both in medicine and surgery, and would have held up their hands in holy horror had you intimated that they were either careless or incompetent obstetricians. Yet these same gentleman would have allowed a woman to endure a difficult and almost impossible occipito poste-

rior forceps delivery with a dead foetus, with perhaps fatal results.

In advocating abdominal palpation as a method of ascertaining fetal position, I claim for it simplicity and safety, neither of which can be said of vaginal examination. It is so elementary that the veriest tyro can learn in one week to make diagnoses with a tolerable degree of accuracy. I have seen nurses who knew nothing absolutely of the relations learn it in a dozen lessons.

Of vaginal examination, Playfair says: "Indeed, it requires considerable practice and experience before it is possible to diagnose position of head with certainty." It has been claimed, and by good authority, that with an os the size of a dollar, we can in ordinary cases hope to make out no more than that we have a cephalic presentation, and that not always. That being the case, we can by abdominal palpation make a diagnosis when by any other method it would be impossible. Again, if seen later, when the head has become molded, the sutures overlapping, with the scalp in folds and with a large caput succedaneum formed, it is with extreme difficulty and no little traumatism that we can make out position.

Crede says that the slightest exploration of the genitals can injure the tissues, and once the continuity is destroyed, we have the gates open for infection. Of the practicability of external examinations, he further says: "It has always been my aim to perfect myself in the various methods of making correct diagnoses. I have absolute conviction that vaginal examinations, which until now have been the only method, can and should be displaced in the majority of instances by external examination. Leopold delivered 919 cases, in which not a single vaginal examination was made."

Parlik says: "Through it alone we can make diagnosis of longitudinal or transverse presentation, whether breach or head presents, and whether head has entered pelvis, or is still movable above linear or innominate." I do not claim for it simplicity in every case. Given a large fleshy patient with tense abdominal walls several inches thick at times, no diagnosis can be made. Nor do I claim that it should exclude vaginal examination, but that it can and should in the majority of instances.

I will briefly describe the method of Prof. Leopold, as taught by Dr. Rosenberg of New York. It consists of four methods, all of which should be practiced with extreme gentleness. Should the patient be in active labor, it will be easier to palpate between pains. The woman lies upon her back, legs extended. In the first three, the physician sits at the bedside facing patient. First he places both hands upon belly below umbilicus, palm or surface downward, finger tips meeting over the abdomen. He with gentle pressure carries hands over fundus. This teaches us height of fundus, size of uterus, if we have a longitudinal or transverse presentation, foetal parts occupying fundus. In second manipulation, we place either right or left hand just above symphysis, separate fingers from thumb as far as possible; with gentle pressure force the hand downward and backward; at the same time we grasp intervening tissues firmly between thumb and second finger. If it is round and hard it can only be the head, the breach being softer and more irregular. Should we feel no presenting foot, we look for head on either side. In the third manipulation, the hands are placed at each side of the uterus, nearer fundus. In making pressure we determine, if one hand meets with more resistance than

the other, feeling a long, large cylinder, corresponding to back, the other after finding the small parts. Should the back not be on either side, nor in anterior median line, we by process of exclusion locate it as lying on mother's spinal column. Should labor be advanced, or head have descended low in pelvis, to get it distinctly we must use the fourth method. Attendant stands aside of patient, looking toward her feet; allow the finger tips of both hands to enter pelvis from above. Should the head be low, we get it distinctly between the two hands.

Herbert Spencer, shows that it is possible to recognize placenta previa by external examination, when it is attached to lower anterior uterine segment. In such a condition, we get the head distinctly outlined, as though a substance of the consistence of wet sponge intervenes. By it and auscultation we have the only method of recognizing multiple pregnancy and complications arising therefrom.

When we compare the relative safety of the two methods, we must consider both mother and child. Inasmuch as the mother is already a useful member of society, we should give her more serious deliberation. Of course, in a normal position of child, with a normal pelvis, the only pathological factor from an obstetrical standpoint is infection. This, however, is of no little importance, as statistics show that a child-bed fever is almost as prevalent in private practice as after the immediate days of Semilur of Vienna, nearly fifty years ago.

Hegar, who has made exhaustive investigations of the statistics of the Grand Duchy of Baden, claims that during the past forty years the mortality among women for the three weeks following labor has not varied.

Axman, who has been at the head

of the Maternity of Exfurth for the past thirty years, commenting upon his experience during that period, regrets exceedingly the mishaps that have arisen from the use of carbolic acid and bichloride of mercury.

Doderlein reports three cases where infection was carried. These cases were examined by the same nurse at intervals of six hours, who practiced the most rigid antiseptic precautions. Antisepsis in obstetrics is not practicable, and carried to a degree bordering on success, defeats its own aims and becomes meddlesome midwifery.

Veit claims that it has been demonstrated that pathological micro-organisms are extremely rare in vaginal secretions. That in nearly every case infection comes from without, either from an unclean finger or from infectious material carried from external genitals to vagina and uterus. His ideas are in most thorough accord with reports of missionaries from among savages, to whom the vagina is sacred during parturition. These uncivilized people, though surrounded by filth and squalor and to whom soap and water are only articles of diet, are most beautifully exempt from infection. Of the 919 cases reported by Leopold, only two gave evidence of infection, and that of so mild a character as to be followed by a speedy recovery. Puerperal fever is nothing else than septicemia developed from absorption of ptomaines, produced by pathological micro-organisms, introduced in nearly every instance by medical attendants. We are almost justified in saying that he who reports a case of infection acknowledges a dereliction.

Howard Kelly has shown that it is impossible to absolutely sterilize our hands or the external genitals, hence we should hesitate to introduce fingers into the vagina, which, indeed, may have recently opened an abscess

or dressed a pus case. The uterus with its moisture, heat and food for micro-organism, becomes an ideal incubator, one that would make a bacteriologist turn pale. We should endeavor to reach a point in obstetrics that surgery has attained, viz.: that asepsis is more satisfactory than antiseptis; that it is more scientific to avoid infection than to treat it.

Rosenberg says that "as little as a surgeon introduces a probe, even though aseptic, into a wound without proper indication, just so little is the obstetrician justified in making vaginal examinations without necessity." He concludes by saying that "Certain it is that he who has not examined a woman has not infected her."

We must not consider ourselves guiltless when we have a case which an old grandmother diagnoses as milk fever, however satisfactory it may be to our victim. We must also disabuse our minds of the frequency of auto-infection, which exists once in about five hundred cases, and then of only a mild character. Of course we may have it in cases of profuse purulent vaginitis, or during exhaustion attending labor adhesions may be broken, liberating pus, etc. However, two cases of profuse purulent vaginitis, specific in character, were delivered while I was interne in Mothers' and Babies' Hospital, New York, which were not followed by infection. They were given vaginal douches, 1-2000 bichloride, at beginning of first stage, and at completion. No vaginal examinations practiced. Should aseptic midwifery be more thoroughly practiced, the field of the gynecologist would be decidedly curtailed.

Dr. Gribble, of Virginia, says that of the 130 cases operated upon by him, the salpingitis, etc., could in the

great majority of cases be traced to septic endometritis following abortion and labor. Now as to the safety of the child. Every diagnosis of foetal position would diminish the number of still births. Pelvis presentation, while not materially increasing the danger for the mother, prolong labor and entail more suffering. The percentage of breach cases is variously estimated from one in 38 to one in 52. Dubois calculates that one breach in every eleven. Churchill, in every 3 1-3. Hirst, one in every three results fatally for the child. In nearly every case, should a diagnosis be made sufficiently early, before the cervix has dilated, while membranes are intact and before foetal parts have become impacted, we can reduce to a cephalic. If we wait, however, until a diagnosis can be made per vaginam, reduction will be decidedly more difficult, if not impossible. The same may be said of transverse, in which Churchill estimates one mother in every nine dies, while over one-half the children are lost. Even though we sometimes fail, the attempt has not increased the danger. An anæsthetic will facilitate reduction.

Inasmuch as vaginal examinations become at times imperative, I will conclude by mentioning conditions justifying. Should we from pelvic measurements suspect contractions, especially in primiparæ, should we have an abnormal presentation, constitutional disturbances, protracted preservation of the membranes, prolonged labor, excessively severe pains, irregular foetal heart sounds, hæmorrhage, or œdema of external genitals, vaginal examinations are indicated.—*Southwestern Medical Record, Jan., 1896.*

BOOK REVIEWS.

All Exchanges and Books for Review should be sent to Dr. C. G. CUMSTON, 826 Beacon St., Boston.

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The illustrations are very good, and although not very numerous, are not of the "old friends."

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THERAPEUTICS OF INFANCY AND CHILDHOOD. By A. JACOBS, M.D. Philadelphia, 1896. The J. B. Lippincott Co., publishers.

This volume is one that should be in the library of every practitioner. Practical and to the point, it contains

matter of interest and importance on every page.

The sound teachings of its distinguished author should be known to all, and we feel sure that, in recommending this book, those who may purchase it will never regret it.

AN AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY FOR 1896.

Collected and arranged by eminent American specialists, under the editorial charge of George M. Gould, M.D., Philadelphia. W. B. Saunders, publisher. Price, cloth, \$6.50 net. Sold by subscription only.

We wish to particularly call the attention of our readers to Mr. Saunders' new and very valuable Year-Book, which in our opinion is by far the best that we have yet seen.

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Clark; otology, C. H. Burnett; rhinology and laryngology, E. F. Ingals and T. M. Hardie; pathology and bacteriology, John Guit  ras and David Reismay; materia medica and experimental therapeutics, H. A. Griffin and Van Horn Norrie; anatomy and physiology, C. A. A. Haman and G. N. Stewart; hygiene, physiology and chemistry, Henry Leffmann.

The editor and publisher should receive the warmest thanks for this most valuable work.

AN AMERICAN TEXT BOOK OF SURGERY.

By various authors. Edited by W. W. KEEN, M.D., J. WILLIAM WHITE, M.D. Second edition, Philadelphia, 1895. W. B. Saunders, publisher. Price, cloth, \$7.00. Sold by subscription only.

The second edition of this most excellent treatise on surgery is very good in every respect. Many of the illustrations have been redrawn and a number of new ones have been substituted for old ones.

Among the addition of subjects may be mentioned sympliseotomy, the Heartly-Krause method for removal of the Gasserian ganglion, Witzel's gastrostomy, etc. Fractures and dislocations, appendicitis, radical cure of hernia, and the more recent methods in amputation of the breast, have been enlarged, especially as regards treatment.

This edition is in all respects a good one and will, we feel confident, meet with the same great success as the preceding one.

ANNALS

—OF—

GYNÆCOLOGY AND PÆDIATRY.

DEPARTMENT OF PÆDIATRY.

REVIEW OF PÆDIATRY.

THE TREATMENT OF TUBERCULOSIS IN CHILDREN WITH IODOFORM IN- JECTIONS.

Wieland (*Deutsche Zeitsft Chirurg.*, 1895, 41 Band., 378), finds the conservative treatment, with 10 per cent. iodoform injections, of tuberculosis of the soft parts, bones and joints much more satisfactory in children than in adults; and analyzes in support of this view, the report of the Children's Hospital of Basle for the last five or six years.

He finds that tuberculous abscesses treated in this way healed very often. The method employed was to empty the abscess with an aspirator, then irrigate with a 4 per cent. boracic acid solution, and, after the cavity had been well washed out, to inject 20 to 50 ccm. of a 10 per cent iodoform emulsion, either in glycerin or oil or in water, adding a small quantity of gum arabic to hold the iodoform in suspension. As often as the abscess refilled, the operation was repeated.

It is essential to keep the part treated at rest, and to firmly support it with a flannel bandage.

Of twenty-one cases treated in this manner, sixteen, or 80 per cent., were

fully cured, four were removed from the hospital by parents before treatment was completed, and one case was a positive failure. In eleven of the sixteen successful cases, one injection sufficed; in one, two were necessary; and in four the patient required three injections. Fistulae at the point of injection occurred four times and once there was a septic infection of the large abscess.

Twelve cases of joint tuberculosis were treated in this way. Nine, or 75 per cent, were cured and two cases were much improved. Joint cases required from six to thirteen injections given during a period of two to six months.

Four cases had acute nephritis from the iodoform which, however, speedily disappeared. In one case there was severe iodoform intoxication, but in this case 20 per cent. emulsion was employed.

SCORBUTUS IN INFANCY.

Dereum (*Med. and Surg. Rep.*, 1895, lxxii, 509), reports a severe case of scurvy, which recovered rapidly after the diagnosis was made and the proper treatment instituted. This

treatment consisted in cold sponging; wet compresses around the legs and thighs, which were thickened and very tender; the administration of dilute sulphuric acid and ergot in drop doses; and a diet of raw milk, raw beef juice, orange and lemon juice. During convalescence cabbage, potatoes and tomatoes were given.

THE TREATMENT OF DIPHTHERIA WITH BEHRING'S SERUM.

After treating a large number of cases at the Mariahiefer Hospitals of Aix-la-Chapelle, F. Wesener (*Muenchen Med. Wochensft.*, 1895, 853 and 883), in an excellent paper, in which a large number of cases are well observed and analyzed, comes to the following conclusions:—

In simple pharyngeal diphtheria serum therapy alone will do no more than a properly applied local treatment, nor will it do less. It prevents apparently the extension of the process to the larynx better than local treatment, but it does not prevent with certainty the occurrence of sepsis.

In laryngeal diphtheria a tracheotomy or other treatment for stenosis is somewhat less frequently necessary with the serum treatment than with other methods.

In laryngeal diphtheria the serum treatment prevents the extension of the disease to the trachea and bronchi better than any known remedy. If, however, these parts are already involved, it is very doubtful if the serum will be of benefit.

When sepsis is present, serum will be of little benefit, even less than other methods of treatment.

It is not positively established that serum has immunizing powers.

The serum treatment is not harmful.

THE TRANSMISSION OF SCARLET FEVER.

Grasset (*Ann. d. Hyg.*, Paris, 1895, xxxiv, 143) reports that a child visiting away from home was taken ill with scarlet fever; the friends remarking that the desquamation was like the casting of a snake skin, wrote a description and enclosed three pieces of skin for the parents. Six and a half days after receipt of the letter, a baby brother of the first child, living at home, took the disease.

The only other case of transmission of contagion by letter reported, was published by Sanné. In this case two persons received a note from a convalescent from scarlet fever, who wrote that she was desquamating so freely that she had to brush the fine scales off the note-paper on which she wrote. Some days later both recipients became ill with the disease.

BRONCHORRHEA, CONGENITAL, AND PROBABLY INDUCED BY MATERNAL IMPRESSION.

Dr. J. Madison Taylor (*Phila. Polyclinic*, 1895, iv, 21) reports the case of a small female baby, five weeks old, who suffered from a most distressing constant cough, and excessive watery expectoration. This condition had been present since the birth of the baby.

The mother was a fine, healthy woman, about forty years of age, and was subject to occasional attacks of bronchitis with excessive secretion. During the last pregnancy, she suffered unusually from bronchorrhea, but not for a month or more before labor.

The child coughed profusely from the beginning and the act of suckling was perpetually interrupted by a fill-

ing up of the naso-pharynx by the bronchial secretion, causing dyspnea and exhaustion, and, moreover, increasing mechanical disturbance of the stomach, with vomiting. Mother and child gradually failed in strength from the ceaselessness of the strain. Medicines appeared powerless to check the flow. The heart and respiration grew steadily weaker as nutrition failed from reflex vomiting, as well as from fatigue caused by excessive efforts at suckling against the opposition offered by rapid filling up of the nose from below: and the child died at six weeks from pure exhaustion, or, more likely, drowned in its own exudations. Autopsy was not allowed.

THE MELENA OF THE NEW BORN.

Romme (*Arch. d. Tocol. et d. Gynec.*, Paris, 1895, xxi, 25) in an article of some length discusses the various theories of the etiology of melena of the newly born. He finds that infection is the only satisfactory explanation, and that so many different varieties of bacteria have been demonstrated, melena must be considered a symptom like purpura.

RESUSCITATION OF STILL-BORN INFANTS BY RHYTHMICAL TRACCTIONS ON THE TONGUE.

Erskine (*Med. and Surg. Report*, 1895, lxxii, 525) reports this case. The child was born asphyxiated, and usual methods of artificial respiration were tried for ten minutes without success. The tip of the tongue was then held by a small artery forceps and rhythmical tractions were made so that twenty to twenty-four were produced each minute. In about six minutes the nostrils began to flutter and in less than ten minutes normal respiration was established.

GONORRHOEAL RHEUMATISM IN A NEWLY BORN.

Haushalter (*Semaine Med.*, Paris, 1895, xv, 382) reports a case of gonorrhoeal rheumatism accompanying gonorrhoeal ophthalmia in a child twenty-five days old. The knee and ankle were affected and gonococci were found in the exudation within the knee joint. This case is the eleventh on record in the newly born.

BLOOD CHANGES IN A CASE OF INFANTILE MYXŒDEMA.

Labreton and Vaquez (*Bull. et Mem. Soc. Med. d. Hop. de Paris*, 1895, xii, 22) report that in children affected by myxœdema the number of red blood globules falls very low, even to 1,750,000; the white globules to 4,500 and the hæmoglobin 65 per cent. There are some nucleated globules which give the blood a foetal character. The number of globules of each variety increases under the influence of thyroid gland.

HYPERTROPHIC CIRRHOSIS OF THE LIVER IN INFANTS.

Gilbert and Fournier (*Rev. Mens. d. Mal. de l'Enf.*, Paris, 1895, xiii, 309) report seven cases of hypertrophic cirrhosis of the liver with jaundice, in children. Six of them were under 14 years of age and one 19 years old. They note that the symptoms and the course are similar in children to those in adults, but that there are three peculiarities of the disease in the former.

First, great increase in the size of the spleen may be present with or without much increase in the size of the liver, and the splenic tumor may seem to be the feature of the disease. Second, in certain cases there are bone and joint lesions, and third, there

is a considerable lack of general development.

THE TREATMENT OF DIPHTHERIA BY ANTITOXIN.

William H. Welch (*Bull. Johns Hopkins Hospital*, 1895, vi. 97) gives a clear and convincing statement of the true position of antitoxin in the treatment of diphtheria. After a careful analysis of over seven thousand cases obtained from eighty-two reports, he concludes from a study of the evidence that the following points seem to be established:

Most writers approve of the continuance of such measures of local and general treatment as have hitherto been found to be useful, but recommend the avoidance of all irritating and caustic local applications.

The injection of the serum may be followed in a few hours by local pain, swelling and redness, but there is no danger of abscess formation if the serum is uncontaminated and proper antiseptic precautions are taken. In over 3000 injections Martin observed the formation of an abscess only three times.

In twenty-four to forty-eight hours after the injection the general condition of the patient is remarkably improved in the great majority of those patients who are in a condition to be benefited at all by antitoxin. This general improvement is accompanied by a fall of temperature, which may be a critical fall, especially if the disease is not far advanced; often it is a fall by lysis. Some hold that there may be a temporary rise of temperature as an immediate effect of the injection. Accompanying the fall of temperature is improvement of the pulse as to frequency and tension, but the heart's action may for some time, even into the period of convalescence, remain weak.

In the favorable cases the local diphtheritic process is arrested, usually within the first twenty-four hours after the injection. Membrane may appear upon spots previously inflamed and invaded by the bacilli, but otherwise there is no extension of the membrane in the majority of the cases which are benefited. The area covered by membrane becomes sharply demarcated, and the swelling of adjacent mucous membrane disappears. The membrane may disappear by rapid separation or by gradual softening. Sometimes it persists for several days after disappearance of all other local disturbance. Large membranous casts are coughed up from the larynx, trachea and bronchi under the serum treatment more frequently than under former methods. The rapid separation of the membrane in the lower air passages may cause sudden increase of stenotic symptoms. Nasal discharge is lessened. The swelling of the glands in the neck and the surrounding œdema disappear, so far as these are not referable to secondary infections.

The most uncertainty prevails as to the influence of antitoxin in preventing the three most important complications or sequelæ of diphtheria, nephritis, heart failure and paralysis. The weight of evidence is that genuine nephritis is far less common in cases treated by antitoxin sufficiently early than under other methods of treatment, but it is questionable whether albuminuria is less common, although it is considered to be by Kossel, Roux and others. If there is an albuminuria in any way directly referable to the injection of the serum, and this is by no means established, it is simple albuminuria with perhaps a few narrow hyaline casts, but without evidence of any serious danger to the kidney. Peptonuria, it is claimed by Hecker, is an

effect of the serum, but it is without clinical significance. Albuminuria is such an extremely common symptom of diphtheria that it must be very difficult to determine that it can be referred to the serum in any case.

Many writers emphasize especially the favorable influence of antitoxin upon the heart, but there are some who have observed that with decided improvement in all other symptoms the force of the heart may still remain weak and occasion anxiety. Baginsky's experience is that the minor disturbances of the cardiac action are not less frequent in cases treated with serum: they appear to be even more frequent, as a larger number of cases survive, but that actual death from heart failure is far less common in the serum cases than in others.

Post-diphtheria paralysis may occur in cases treated with serum as early as the second or third day of the disease. Whether they occur in cases treated within the first twenty-four hours is not certain. According to some, paralysis is even more common in the serum cases than under former methods of treatment. This is doubtful, but if true, it may be attributed to the survival of a larger proportion of cases.

It is apparent from what has been said that antitoxin is most strikingly beneficial in progressive fibrinous diphtheria and especially in the prevention and cure of laryngeal diphtheria. In septic diphtheria the serum treatment is of little avail.

Antitoxic serum may produce unpleasant effects, but these do not involve danger to the patient. They are in all probability referable to the serum as such, and not to the healing, so-called antitoxin, substance contained in the serum. The most common undesired effect is some form of exanthem, usually erythema and

urticaria, sometimes an eruption like measles or scarlatinal rash. The same exantheas have been observed by Bertin after the injection of ordinary serum of the horse, and by Richardière after injection of Marmorek's anti-streptococcus serum.

The serum from some horses is more likely to cause these exantheas than that from others, and there may be individual idiosyncrasies favoring their occurrence. Some writers report the occurrence of an exanthem in not more than five per cent. of their cases: others have observed them in over fifty per cent. of the cases treated with serum. They may be localized in the neighborhood of the seat of injection or extend from that over the greater part of the body, or make their first appearance at a distance from the point of injection. Often without noticeable fever they may be accompanied by considerable elevation of temperature and by pain and swelling in the joints. A rarer but more severe form of serum exanthem resembles erythema multiforme, and when this is accompanied, as it may be, by high fever, and severe pain in the bones and joints with swelling of the joints, the condition of the patient may really seem serious: but these patients recover. Some have attributed a petechial eruption to injection of the serum, but this may occur in diphtheria without serum treatment.

These occasional untoward effects of the healing serum are annoying, but, being unattended with danger to life and without serious consequences, they do not contraindicate the use of the serum.

There have been a few cases reported in which the writers, without any satisfactory evidence whatever, have referred the death of the patient to the use of the serum. The essential harmlessness of the serum

has been demonstrated by over a hundred thousand injections, and if future investigations should show that through some idiosyncrasy on the part of the patient death ever is attributable to the injection of the serum, this would probably count for about as much as the rare deaths from the use of ether or chloroform.

The principal conclusion which he draws from this paper is that the study of the results of the treatment of over 7,000 cases of diphtheria by antitoxin demonstrates beyond all reasonable doubt that anti-diphtheric serum is a specific curative agent for diphtheria, surpassing in its efficacy all other known methods of treatment for this disease. It is the duty of the physician to use it.

The latter reports show in general a decided improvement in the results of the treatment over the earlier ones, and there is every reason to believe that the results of the second year's employment of the new treatment will make a much more favorable showing than those of the first year. We shall come to a clearer understanding of the mode of action of the healing serum. Improvements in the methods of preparation and preservation of the serum, and possibly the separation of the healing substance, at least from other ingredients which produce the undesired effects, may be expected.

The discovery of the healing serum is entirely the result of laboratory work. It is an outcome of the studies of immunity. In no sense was the discovery an accidental one. Every step leading to it can be traced, and every step was taken with a definite purpose and to solve a definite problem.

These studies and the resulting discoveries mark an epoch in the history of medicine. It should be forcibly brought home to those whose philo-
zoic

sentiments outweigh sentiments of true philanthropy, that these discoveries which have led to the saving of untold thousands of human lives have been gained by the sacrifice of the lives of thousands of animals, and by no possibility could have been made without experimentation upon animals.

TYPHOID FEVER IN YOUNG CHILDREN, BEING A REPORT OF CASES OCCURRING AT STAMFORD, CONN., DURING THE EPIDEMIC OF 1895.
By W. P. NORTHRUP, M.D.

The susceptibility to typhoid fever is very slight during the first two or even the first three years of life. This susceptibility may be overcome by the overwhelming poison present in a severe epidemic. The following cases were observed in May, 1895, during the progress of an epidemic in Stamford, Conn.

CASE I. — A child of thirteen months; recovery. This epidemic, which numbered 406 victims, was due to the use of contaminated milk obtained from a single dairy, 95.3 per cent. of these cases having partaken of that milk. The epidemic was remarkable because of the large number of children affected.

This child was the youngest case reported. It showed the characteristic typhoid condition. It was easily aroused, and quickly sank back into stupor and cried feebly. Its tongue and lips were dry, its color pale or sallow. It had lost some flesh; the abdomen was soft, being neither distended nor sunken. The spleen was enlarged and could be easily felt. The typical eruption was present, appearing in fair quantity over the abdomen, back, thorax and thighs.

CASE II. — Male, twenty-two months; death from pulmonary complications; autopsy.

The child died early in the course of the disease, but the exact day of disease was not known. The cause of death was broncho-pneumonia.

Autopsy made by the writer showed these points of interest: Swelling of the Peyer's patches in the lowest portion of the ileum: swelling of solitary follicles of small and large intestines: marked swelling of the mesenteric lymph nodes: moderate enlargement of the spleen.

Here is a case with a history of direct exposure, with the classical symptoms as to fever, tongue, spots, spleen, and diarrhoea, with the subsequent findings as to swollen Peyer's patches, mesenteric glands and spleen, and yet examination of the ileum, while it showed characteristic swelling of the solitary follicles and Peyer's patches, did not show as great a number of gross lesions as is frequently presented in patients dying from acute intestinal disease due to indigestion.

Five other cases are reported: one of sixteen months, one of twenty-two months, one of twenty-seven months, one of thirty months, and one of three years. These cases passed through a typical course of typhoid fever and recovered.

From these seven cases it would appear that typhoid, when it does come, appears under the same guise in children as in adults. In them, as in adults, the characteristic eruption is one of the most valuable points toward a diagnosis. The author expresses a desire to encourage a healthy scepticism as to typhoid in an infant, especially in the absence of an epidemic, which case has not the classic symptoms and signs which would lead to a diagnosis in an adult. He would say further: Beware of typhoid without lesions and lesions without clinical history of typhoid.—*The Archives of Pediatrics, January, 1896.*

PYGOPAGUS.

Dr. A. Jacobi in the October number of the *Archives of Pediatrics* reports a case of this rare condition. By pygopagus is meant joined twins, the point of union being at the sacrum. After a careful search through medical literature of the past four hundred years Dr. Jacobi was able to find but fourteen reported cases. A detailed description of these cases was given. In the January number of the same journal he reports another case, that of the English sisters known as the Biddenden Maids, an account of whom was recently published by Dr. Ballantyne of Edinburgh.

DEFORMITY RESULTING FROM AN OLD EMPYEMA.

A boy of fourteen years presented himself at the Polyclinic with the following history: He was well until five years of age when, following an attack of illness, which from the history was probably a pneumonia, he developed a cough and low fever with gradual wasting. These symptoms continued for many weeks. After four or five months a swelling appeared in the neighborhood of the left nipple. It was soft and fluctuating, and after being poulticed discharged a large quantity of pus.

A sinus was left, from which pus continued to be discharged for nearly five years. The boy's general health improved somewhat, but he never became as strong as he was before the illness. He finally applied to a hospital in Brooklyn, where Estlander's operation was performed. A portion of the fourth, fifth, sixth and seventh ribs appears to have been removed. After a few months the wound closed completely and permanently, but left

excessive deformity of the chest, the centro-posterior diameter of the left side being but half that of the right.

The boy was quite delicate in appearance, but with the exception of an occasional cough, he had suffered no pulmonary symptoms for three or four years. The case illustrates very well the result which may sometimes be obtained in an ordinarily hopeless condition.—*L. Emmett Holt, in Archives of Pediatrics.*

RECURRING ASCITES, WITH REMARKABLE COMPLICATIONS.

The Archives of Pediatrics for January contains a most interesting paper on recurring ascites associated with enormous heart hypertrophy and chronic proliferative peritonitis, by Dr. William Osler. It is based on the case of a girl eleven years of age, who within a period of three years, was tapped 121 times for ascites.

The points of particular interest in the case were: The enormous hypertrophy and dilatation of the heart; only partial pericardial adhesions; the clinical picture of mitral valve disease, which most of these cases of adherent pericardium present so soon as the cardiac dilatation becomes excessive; the diastolic murmur along the left sternal margin, which was probably associated with insufficiency of the valves of the pulmonary artery—Graham Steell's murmur of increased pulmonary tension; the subcutaneous fibroid nodules in a child who had never had acute arthritis and who had no mitral valve disease; and lastly the remarkable tumor formed by the pulsating liver.

CONGENITAL SYPHILIS.

The manifestations of congenital syphilis have for fundamental char-

acter: 1st. the infection is not the result of penetration through the lymphatic system; 2nd, there are no primary sores; 3rd, it affects the whole organism, externally and internally.

The influence of the father on the syphilis of the child has been notably exaggerated, but it is nevertheless certain. The influence of the mother is absolutely certain, independently of all paternal disease; and the influence of the fœtus on the mother has been proved beyond doubt by the works of Diday and Fournier.

The manifestations of infantile syphilis consist in lesions of the skin—pemphigus, roseola and vesico-pustules,—lesions of the mucous membrane—mucous patches and coryza,—visceral lesions—usually of the lungs, the liver and the testicle,—and osseous lesions—principally of the cranium and more especially of the parietal bones.

The treatment of infantile syphilis is simple enough. It suffices to rub in daily a small quantity (about the size of a nut) of mercurial ointment in the abdomen, the calves of the legs, and chest. If cutaneous syphilides exist, a bath of corrosive sublimate is ordered, and for the mucous patches calomel ointment.—*Medical Press, London, 1895, l. 343.*

Hulot (*Gaz. Hebd. d. Med., Paris, 1895, 26*) reports 30 cases of general staphylococcus or streptococcus affection in children, in which the origin of the germs was traced to the skin, which was affected by multiple local spots of suppuration. The general infection took place usually either through the respiratory tract, causing a broncho-pneumonia or through the digestive tract, causing an enteritis. At the Hospital des Enfants-Assistés, there have therefore been instituted sublimate baths and frequent washing of the mouth, throat and nose in such

cases. Measles, impetigo, varicella, herpes, pemphigus and eczema may all deserve these precautionary measures.

THE TREATMENT OF THE NOSE AND THROAT DURING THE COURSE OF MEASLES AND SCARLET FEVER.

The objects to be accomplished are to thoroughly cleanse the mucous membrane, to render the secretions alkaline, to render inert the bacteria which may be present, and finally to lubricate the mucous membrane and protect it from too rapid evaporation. In cleansing the nares, use a simple one-bulb atomizer which is coarse and free, in order not to blow a lot of air into the nostrils, or it may be poured from a teaspoon, a dropper, or a Dessar's nasal douche cup. Cleansing solution: Seiler's antiseptic tablet, one tablet; cocaine, four grains; and water, two ounces. Oily protective: liquid albolene or hydrastol, a preparation of hydrastis with oil of cinnamon and other aromatics, one ounce; menthol, thymol or eucalyptol, one grain; and spirits of chloroform, one-half drachm. One-half per cent. cocaine may be added by first dissolving it in oleic acid (one grain of alkaloid to the minim of the acid). For acute zymotic coryza of children: eucalyptol, six minims; cocaine, five grains; oleic acid, five minims; chloroform, one drachm; and hydrastol, two ounces; or thymol, two grains; terobene, five grains; and hydrastol, one ounce. For catarrhal laryngitis: chloroform, one-half drachm; menthol, five grains; camphor, ten grains; and hydrastol, enough to make one ounce:—spray down into the larynx several times daily. If a powder is desired as a protective, use the compound stearate of zinc combined with boric acid, ten per cent.; menthol, two per cent.; cocaine, four per cent., etc.

If there is a croupous exudate, use peroxide of hydrogen, preceded by a spray of one per cent. solution of cocaine, and followed with an oily protective. For epistaxis, the application of peroxide of hydrogen is excellent. The inhalation of warm, medicated steam is valuable, and one-half to one drachm of any of the following mixtures may be added every two or three hours to the boiling water: tar, one ounce; and alcohol, four drachms. Or: carbolic acid and cresoline, of each two drachms; and eucalyptol and balsam Peru, of each four drachms. Or: gum camphor, one drachm; menthol, two drachms; oil pine needles, two drachms; eucalyptol, two drachms; and oil of tar, enough to make two ounces. Or: eucalyptol and thymol, of each one drachm; carbolic acid and benzoic acid, of each thirty grains; and terebene, enough to make two ounces.—*C. C. Rice, Am. Med. Surg. Bull.*, 1895, viii, 325.

NOCTURNAL ENURESIS.

Strumpf remarks that when a few drops of urine escape into the deep urethra a desire to urinate follows. Consequently he theorizes that during sleep the sphincter of the bladder is apt to become relaxed, and when a child lies horizontally in bed a little urine passes the sphincter, enters the deep urethra, and causes strong reflex action of the detrusor, when the bladder is emptied. It is well known that in nocturnal enuresis in children the urine does not leak away gradually, but is emptied at once. In order to prevent the passage of the urine into the urethra during sleep, a simple expedient is adopted, namely, the elevation of the pelvis, so that an accumulation of urine of ordinary amount will gravitate back and dis-

tend the fundus, and not press against the sphincter. The elevation is secured by allowing the child only a single small, flat pillow under the head, and placing one or two ordinary pillows under the thighs so that they are at an angle of 130 to 150 degrees with the spine. This measure proved successful in twelve cases: it was, however, found necessary to continue the treatment for three weeks before the children were able to return to their former sleeping position without relapsing. — *Boston Medical and Surgical Journal*.

MEASLES.

Measles in young infants may be followed by troublesome pulmonary symptoms and severe inflammation of the eyes. In a recent case with the above complications, Doctor Wells found fluid extract of Eucalyptus, in five-drop doses, gave relief from distressing cough. For the eyes, solution of mercuric chloride (1 to 12000) was employed, a drop or two being instilled twice daily, followed by washing with solution of borax in warm water. — *Philadelphia Polyclinic*.

EXTRA-GENITAL SYPHILIS.

In children the primary chancre is rarely found, and the method of infection is almost always the same: the father brings the syphilis into the family, gives it to the mother, who does not perceive it until the lesions are evident and when the child is already contaminated. Generally the door of entry is the mouth, and the sign which draws the attention of the mother is the inflammation of the sub-maxillary glands. The evolution of

infantile extra-genital syphilis is variable: in general it is very favorable, and in this respect forms a striking contrast with hereditary syphilis. Extra-genital syphilis in the adult appears generally in the form of a primary sore, and usually the lips are the point of origin.

Extra-genital infection varies greatly according to the country. In Russia it sometimes reaches from fifty to ninety per cent. of all syphilitic cases, especially in the country districts. It is difficult to account for such facts with our present knowledge of rural life in the northern countries. — *Medical Press and Circular*.

FOR WHOOPING COUGH.

Herbert B. Carpenter believes that bromoform gives better results than any other treatment for this dangerous and distressing disease. After the paroxysms have diminished a change of air, especially sea air, is most beneficial. As bromoform is but slightly soluble in water, it is best to add some alcohol to the solution, giving it in the following manner:

Bromoform . . .	48 drops.
Rectified spirit . . .	4 fluidrams.
Distilled water . . .	1 fluidounce.
Syrup of tolu, sufficient to make 3 fluid-ounces. Mix.	
Dose.—1 fluidram in water every four hours.	

The taste is scarcely perceptible. It must be remembered that bromoform is very volatile and decomposes readily. It should therefore be kept in closed bottles and protected from the light. — *Phila. Polyclinic*, 1895, iv, 375.

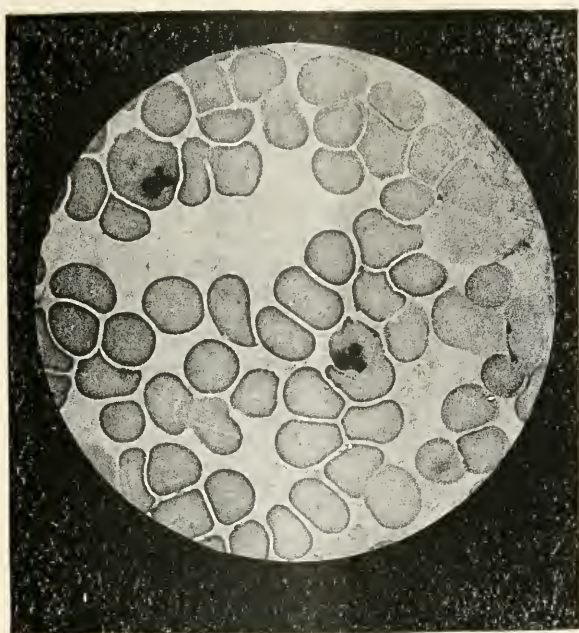


FIG. I.—*Nucleated red corpuscles* in poisoning by chlorate of potassium.



FIG. II.—*Crystals of Hematædin in the blood.* Case of old retro-uterine hematocele.





FIG. III.—Charcot's crystal in the blood.



FIG. IV.—*Mucus and microbes in the blood.* Case of adenoid tumor of the nasal pharynx.





FIG. V.--*Epithelial cells in blood.* Case of tumor of the pituitary mucous membrane.

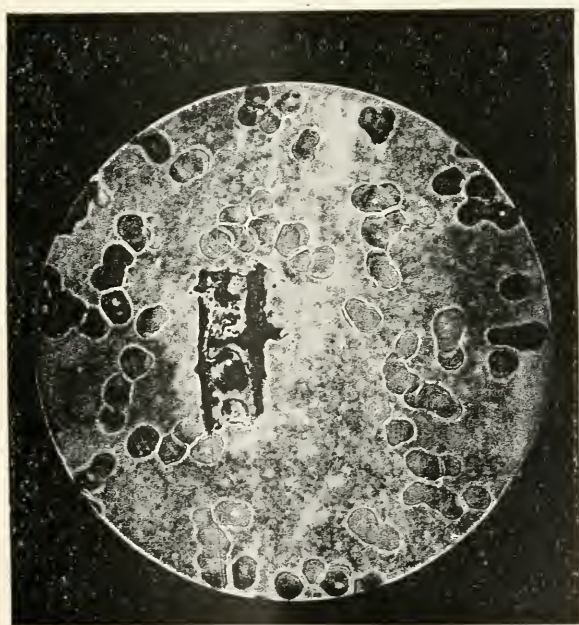


FIG. VI.—*Uterine epithelial cells in blood,* Case of curettage after miscarriage.





FIG. VII.—Blood of relapsing fever.



FIG. VIII.—*Tuberculosis in the blood.* Case of tuberculosis of the intestine (Man aet. 40.)



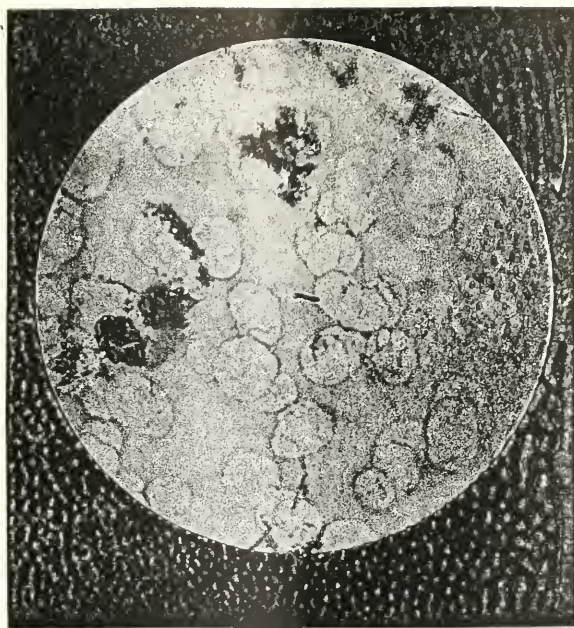


FIG. IX.—*Tuberculosis*. Blood from a case of sub-occipital Pott's disease. (One bacillus is seen in the centre of field) (Woman, aet. 53.)

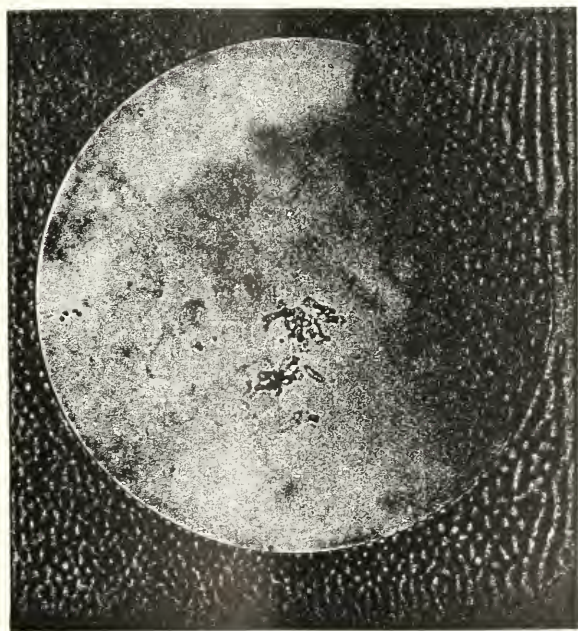


FIG. X.—*Tuberculosis*. Involution type. Metro-tubo-ovarian tuberculosis. Total





FIG. XIII.—*Tuberculosis*. Bacilli in the sperm of a very robust man, aet. 33, presenting no appreciable clinical signs of the disease, but who has two tuberculous children.

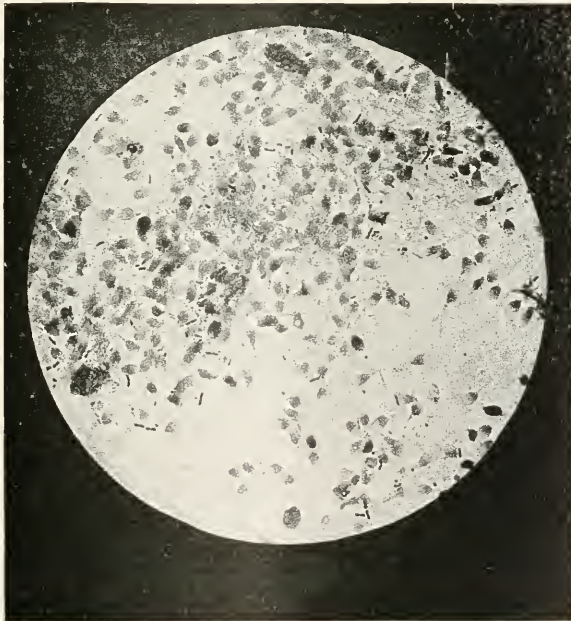


FIG. XIV.—*Tuberculosis*. Bacilli in the sperm, without clinical lesions of the genital organs. Tuberculosis of the stomach

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ORIGINAL COMMUNICATIONS.

On the Applications of Micrography and Bacteriology in Surgical Diagnosis.

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PARIS, FRANCE.

IN the last few years we have carried out a certain number of experiments which have been much appreciated by physicians. These experiments were on micrography and bacteriology of the organic liquids, such as blood, sperm, milk, etc., and these experiments will some day take an honorable position in science, because they bring to the diagnosis, and consequently to the prognosis and treatment, a mathematical precision, and, as I have said, will demonstrate a number of erroneous ideas which are credited by physicians.

Now, if we speak only of the blood here as a synthetic fact which is brought to light by our researches, the study of a drop of blood suffices

in a number of given cases to trace out the past pathological history of the patient, and to show his present condition as well as his future.

It is absolutely essential that such an affirmation should be placed on a convincing basis, and it is for this reason that we did not shrink from any sacrifice whatsoever to collect, either in our private practice, or in our clinic, many thousand microscopic preparations, colored or uncolored, to photograph them, and from these photographs to produce the most demonstrative plates, which are appended to this article.

Everybody knows and admires the triumphant progress that surgery has made in the last twenty years. In

a work published by the Society of Medicine of Paris in 1892 we attributed this progress to three great contemporary discoveries, viz: Anesthesia, hemostosis and antiseptis. It is certain that these discoveries have caused a rapid progress in surgery.

Today organs and tissues are operated upon which, in the beginning of the century, would hardly have been touched. The operations which contributed mostly to the successes and glory of our predecessors have fallen into the rank of minor surgery. Amputations and resections have become every-day operations. Today we cut down on the brain, exercise the pylorus, open the liver, remove the kidneys, and perform castrations in gynæcology by various routes. All these operations are familiar to the surgeon. Hardly several years have passed since these great discoveries of which we speak have been accomplished, and already they have given the maximum of their application.

In the field of operative surgery hardly anything remains to be tried. All has been dared, and all has succeeded. Let me recall these words of Prof. Bouchard: "Operations which were formerly the worst to be feared have lost their gravity, thanks to our methods of preventing infection. It is to be feared that for some surgeons this *fête* will turn into a revel." And, in fact, abolition of pain, the suppression of hæmorrhages, and especially the disappearance of post-operative complications, have diminished the

difficulties and lessened the responsibilities, so that surgeons are perfect in their decision as to operations and have an unlimited audacity in their execution.

In spite of all the progress and improvements, nobody can deny that no surgical operation is inoffensive. The patients still die, and sometimes from the operation.

Now let us take up the subject of this paper, which is on Microscopical Surgical Diagnosis, and the means of perfecting this to so great an extent.

At the present day micrography and bacteriology seem to come more immediately as clinical aid. The research of solid elements, such as cells, fibres, mucus, fibrin, granulations, pigments, crystals, microbes, etc., is, in fact, a more simple study, and of a more direct application than that of amorphous elements, or the fluids of the body. The manipulations also are less complicated.

By the micrographical and bacteriological examination of the various organic pathological or physiological liquids, and in particular, the blood, a most detailed analysis of the biological condition of the patient can be made. By this examination the diagnosis acquires a most formidable precision, and it is consequently to this especially that our efforts should be carried. In order to do so it is of all necessity that the clinician should also be a scientist. It is by a more and more intimate association of the clinic with the science of the laboratory that the healing art will arrive at perfection. For my part I have

not hesitated to enter into this road and to study completely bacteriology and micrography, but the researches being long and the time limited, and in order to arrive at the most satisfactory results, I associated my efforts with a physician as learned as modest, Dr. Golasz, and thanks to his great knowledge, I have been able to bring these most delicate studies to an end.

Physicians who, after the example of Hayem, have studied hematology, have obtained by their researches facts of greatest importance in general medicine. As to the applications of hematological researches relative to surgical diagnosis, we think that no other work on that subject has appeared but the present one. But now in the domain of surgery, when there is considerable tissue change, large accidental or operative traumatism, thus opening large absorbing surfaces, it may readily be seen that these researches would furnish still more important revelations, and several years of study have, in fact, produced documents which, added to those of our predecessors, form the elements of a complete treatise of diagnosis by blood examination.

In order to understand what is to follow, it is not without interest to recall certain anatomical and physiological facts. The blood, being composed of figured elements, viz., blood corpuscles, hematoblasts, leucocytes and granulations, all of which are held in solution in a coagulable liquid, undergoes numerous changes in its composition. The age, the sex, the

constitution, the alternatives of fasting and alimentation, repose and activity, etc., notably modified its characteristics. Nevertheless, it is easy to conceive of *typical* blood which may serve as a starting point, and as a term of comparison. It is easy to estimate in what limits it may vary without going out of the physiological state. The form, the diameter, the coloration, the consistency, the total or proportional number of figured elements, as well as the process of fibrinous coagulation, and that of renewing the hematoblasts, all should be taken into consideration for this end: consequently, when one is in possession of these facts, the essential or symptomatic pathological changes of the blood, as well as their various degrees of intensity, can be easily determined.

The blood is always in motion, bathing all the elements of our tissues, envelopes them, impregnates them, regenerates them by bringing elements of vitality, and cleans them out by washing away lethal agents.

In the incessant movement of circulation, the absorbing surface where it takes up the oxygen, the nutritive fluids and the surfaces of elimination (glandular, excreting or secreting surfaces), the blood establishes constant exchanges between the external world and the interior of the human body, and between the human body and the external world: but still more, it visits the deepest recesses of the organism, and here also accomplishes exchanges with the smallest elements of our tissues, and carries all the use-

ful or deleterious products alike; in fact, the blood contains everything. As Hayem has so well put it: "One finds at the same time in this complex liquid all the principles of life and all the principles of death."

This physiological conception of circulation clearly explains the phenomena which takes place in the diseased organism.

Now, as has been said, the blood absorbs and transports all that is absorbable and transportable without exercising any selection for that which is useful or deleterious. If the pulmonary tissue is in contact, not with the oxygen of the air, but no matter with what other toxic, such as carbonic acid, oxide of carbon, the vapors of ammonia, ether, alcohol, chloroform, etc., the blood absorbs and transports these gases. If the mucous membrane of the digestive tract is in contact with mineral or organic poisons, the blood absorbs and transports them in the same manner as it transports the nutritive juices.

If the blood finds in the most of the tissues not carbonic acid and vapor, but other gases or other volatile principles, such as ether, hydrosulphuric acid, etc., it eliminates them in the same manner: consequently, it is to be easily admitted that the blood absorbs and transports the liquids and the soluble principles, such as toxines, ptomaines, biliary pigment, extravasations of blood, serum, sero-fibrinous or purulent collections (purulent infections, metastatic abscess), urinary products

(uremia), stercoral products (stercoremia), sugar (glycerimia), etc.

Everyone admits that the blood may transport certain microbes, melanin pigment in sufficient quantity to produce thrombosis, and pieces from an atheromatous focus which will produce embolus, as well as clots, fibrinous deposits, bits of valves and endothelial cells, etc., etc.

We can also affirm, with proofs to back it up, that in certain conditions the blood is transformed into a real sewer and carries all the pathological debris and morbid products capable of producing serious effects. Our researches have been carried out in this direction, and we have demonstrated that this phenomenon is present in other circumstances, such as labor, intestinal ulcerations, etc., and we can today formulate a general law which governs the entire pathology, and which we will call the Law of Metastatic Transports: every time, and as long as there exists in the economy a pathological focus and change, or a lesion, the venous and lymphatic capillaries which open into this focus, absorb the liquid or solid, figured or unfigured pathological products, and carry them into the general blood torrent. The blood carries these products, transports them throughout the economy, and places them more or less modified in the midst of the tissues, which take it upon themselves to store them up, to destroy them and to eliminate them. These pathological products may produce a change in the blood which

serves them as a vehicle, or, in the organs which serve them as a terminal station.

From this great pathological law that we have been able to formulate by our researches, and whose certainty has been proven by our experiments, which little by little we will demonstrate from this great law, is gained not only by the experimental confirmation and reasoned edification of certain pathogenic theories, which up to the present day have been hypothetical, and consequently, still open for discussion, but still more, the explanation of a great number of pathological facts which have sometimes been difficult to interpret, such as pyrexias, the phenomena of intoxication of the heart, or the nervous centers, embolus, infectious metastatic phenomena, generalization, etc.

We will now return to these interesting facts, but we will insist more especially on the points that they furnish in rendering more precision to diagnosis when there is a wound or an ulceration, infected or non-infected, the covering membranes (the skin, the mucous membranes, and the serous membrane) and hæmorrhagic focus, necrobiotic or inflammatory (abscess, phlegmon, gangrene) and tuberculus nodules and syphillitic gumma, and solid or liquid tumor, softened or ulcerated,—our law will be found realized.

The blood carries the more or less dangerous pathological products and transports them to different parts: consequently, one should, by the aid of special processes, find in the blood

or in the liquids which are derived from it, as well as in the capillaries of certain tissues, the products identical to those which come from the morbid focus, or these same products more or less modified. When the foci are superficial and accessible, all that is necessary is to directly collect the morbid elements for examination, and from this examination a precise diagnosis can be made.

But, besides the existence of these superficial foci, it may also serve to demonstrate the law that we have already formulated. An example will give a more clear idea of what we mean. Where, in the presence of a patient with endometritis, of a child with suppurating tubercular ademitis, of a patient suffering from an infectious abscess, we remove by scraping a fragment of the endometrium, a piece of the gland, a drop of pus, and we make a micrographical and bacteriological examination, and we find in the first case the gonococci, in the second case caseous matter and the micro-organisms of tuberculosis, and in the third case straphylococci, our diagnosis is established.

Now if we take a drop of blood from the ear of each of these patients with all necessary precautions, and treat this blood with prepared reagents, we will find in this blood mucus and gonococci in the case of endometritis, caseous débris and microbes of tuberculosis in the case of the child, and numerous leucocytes and staphylococci for the third patient,—thus we prove our law.

The blood carries the products which it collects in the morbid foci. This experiment, let us repeat, never fails. It has served us as the basis of our work, and are we not authorized to conclude from this that every time we find the pathological products in the blood, such as the figured elements of the tissues, abnormal pigments, crystals, mucus, microbes,—are we not authorized to conclude, even in absence of all clinical symptoms, that there exists in some place in the body a hidden focus from whence comes these products? Evidently yes, and we admit this fact without reserve. On the other hand we often find in the blood, besides the material proof of the existence of a morbid focus the no less certain proof of its seat. For example, we find besides the bacillus of tuberculosis, other microbes, and also certain cellular elements characteristic of the diseased tissue. Soon the progress of the case confirms our predictions. One day or another clinical examination confirms principles which are impossible not to recognize. Thus we are able to make a precocious diagnosis a long time before the clinical symptoms are observed, and it is thus that we rapidly make a differential diagnosis in a doubtful case.

Now, besides the changes in the figured elements of the blood, the hematalogical examination may add to the diagnosis when other foreign bodies are present, such as nucleated blood cells, large mononucleated leucocytes, cells derived from the various tissues (Fig. V-VI.), débris of fibres

and mucus (Fig. IV.), pigments, crystals, (Fig. II-III.), microbes (Fig. VII. and the following.)

In the discussion which followed the reading of this paper some physicians objected as to the presence in the blood of cellular debris or of cells coming from the tissues. The reply that we made to these objections finds its place here, and we will reproduce it *in extenso*: The principal objection is made from the presence in the circulating blood and in the blood of the capillaries of the ear, of figured elements of the tissues, whose diameter is sometimes markedly larger than that of the red blood corpuscles. Although the cases in question are exceptional, and the objections that they bring up apply in no manner to the generality of cases, that is to say, in those in which we find masses of organic débris in the blood, whose diameter is less than that of the red globules, we will reply as clearly and as completely as possible to these objections. The arguments we will furnish regarding these special facts having a general application, we will commence by removing the idea that there was a technical error in our preparations. We were as much astonished as our hearers the first time we found ourselves in the presence of these facts, which are so little in relation with those that are generally accepted regarding the blood and circulation. This astonishment had as a result to stimulate us to take the most minute precautions, in order to avoid any cause of mistake in our preparations. We will

not present any documents hastily collected by people whose ideas are premeditated. It was only after long reflection, after we had considered all the objections made, after having gained an unshaken conviction, after having repeated thousands of times the same observations by reproducing with care familiar manipulations, that we decided to publish this article. Consequently, what is to be here given are not documents for discussion, but documents which have been controlled. We can, consequently, reply by an absolute confirmation of all that we have already said.

We have been able to demonstrate the mechanism of embolus, infection, metastasis, of generalization, and we can prove it by our preparations and by our photographs. These are material facts, visible, and to a certain extent palpable, which must be in the first place demonstrated. We will now endeavor to explain. This is a difficult question, which necessarily must be delayed for a certain time, and more researches will partly aid in its interpretation: nevertheless, without building up a theory, we will endeavor to satisfy you by only taking into consideration the facts which have had their run in science, and which have fully satisfied us.

In the first place, there is a point that must be fixed, because it includes, without doubt, all the explanations, and that is, *that the capillary vessels are elastic*. All physiologists agree on this point, and all insist on the elasticity of the capillaries. This well known fact does away with the

necessity of invoking as an argument the existence of Sacquet's derivative vessels. It allows only to recall the fact that Péan admits the existence between the veins and arteries of canals of communication sufficiently large to permit of being easily isolated by a careful dissection. For that matter, it is not only by the elasticity of the capillaries that we can explain the physiological phenomena of the most simple character—the circulation of the blood in the capillaries, for example.

Now, in fact, the finest capillaries, which are precisely those of the lungs, have only from 5 micromillimetres to 6 micromillimetres, while the medium-sized red blood corpuscles have 1 micromillimetre, and some leucocytes 8 micromillimetres and much more. It is true that the figured elements of the blood may be compressed and stretched out, according to the needs of circulation, but at the same time the capillaries give way to them by dilating. Lengthening of the figured elements, elasticity of the capillaries, these are two characters which enter into the accomplishment of the circulation when the diameter of the contents is not larger than the interior of the container, whether it be figured elements of the blood or figured elements of the tissues.

We have just taken a physiological example. Now here is a fact taken from pathology which nobody could deny the importance of, or its authenticity: a fact which diminishes considerably, even if it does not completely annihilate the value of the

objections which have been made regarding our work.

One of the characters of myogenous-leucocythemia (L. linale) is the presence in the blood of a considerable quantity of large mono-nucleated leucocytes, which have not less than from 16 to 25 micromillimetres in diameter, and still larger eosinophile cells (3 or 4 times larger than the red corpuscles).

Now how do these elements pass through the capillaries of the lung, which have only 5 to 6 micromillimetres? Nevertheless, you know that they continually pass through during years and years, and still more, the patient does not die suddenly from general asphyxia of the tissues. It is also well known that in the last period of this disease the mono-nucleated leucocytes and the eosinophile cells are in such quantity that they represent a twentieth part of the total number of figured elements of the blood, and still the patient lives several weeks under these circumstances. These elements evidently pass through because the capillaries of the lung are elastic and are easily distended; consequently, it is clearly seen from this simple fact that an embolus is only produced when the elasticity of the capillaries have attained its extreme limits. The foreign body which is engaged in the centre of the vessel becomes wedged in; the problem is consequently reduced to this question: to what extent may the elasticity of the capillaries go? We are not prepared to reply to this, but we affirm that in this case, which we submit for

your examination, it was quite sufficient to allow the figured elements to pass through the blood that we obtained from the vessels of the lobule of the ear.

It becomes almost superfluous to add to these facts another one taken from experimental pathology; however, we will mention it in order to leave no doubt in the minds of our readers. Dr. Golasz and myself removed by scraping, some of the figured elements of the tissues. We allowed them to macerate in distilled water, and we injected a half centimetre cube of this solution in a vein of a rabbit's ear. Immediately afterwards the animal fell on its side exhibiting an intense dyspnoea and convulsive phenomena. Then the attack calmed down little by little, the convulsions occurred longer and longer apart, and the respiration became slower and more regular, and then the animal raised itself upon its hind legs. We then took from the abdominal wall, which had already been shaven, several cover-slides of blood, which we examined immediately without having dried or colored them, and we found the macerated tissues that we had injected in the ear; and lastly, the reader will notice in what is to follow that we are of the same opinion with other writers in demonstrating that the blood in circulation contains figured elements of the tissues, such as cancer or sarcoma cells, cartilage cells, and fat cells. This, according to our opinion, is the essential proof.

As to the mechanism of the pene-

tration of foreign bodies into the small veins which have become gaping by ulceration or by their section, we explain it in a general way by the aspiration exercised on the venous blood by the heart. Although this aspiration is slight, it is active and sufficient to determine, at the open extremity of the venous tree, the entrance of the neighboring liquids. Whether these liquids are in equilibrium, or whether they undergo more or less directly the action of *vis a tergo*, and the pressure due to the contractility of the peripheal tissue near this closed space. The aspiration exercised by the heart on the venous blood is principally due, according to a certain theory, to the action of the papillary muscles of the heart.

At the time of the ventricular systole the papillary muscles contract, and draw the infundibuliform cone, formed by the valves, into the ventricle. From this results a sort of aspiration that the auricle, on account of this mechanism, exercises on the venous blood because its activity plunges more and more into the ventricle. Such are the explanations that we are in part ready to give.

The penetration of foreign bodies into the blood, whether direct (by the open veins) or indirect (by the open lymphatics), the circulation of these foreign bodies in the economy, the disorders that they provoke by becoming lodged in the tissues, is accomplished by a process similar to that admitted by Boyer, Velpeau, Sedillot and others, to explain puru-

lent infection. The phenomena are accomplished by the mechanism which is today well established and admitted without denial.

Fat Embolus. It is especially following lesions of the bones that drops of fat are seen to penetrate directly into the veins and go to the heart, and are thrown by this organ into the pulmonary vessels, or even into those of the general circulation. When these masses of fat are too large, they remain in the capillaries of the lung, and give place to all the phenomena of pulmonary embolus without necessarily causing death, but smaller masses may easily traverse the capillaries of the lung, and may be pushed along as far as the capillaries of the general circulation, and have been found in the kidney by Hahn, in the brain by Gerny, Hahn and Flouruy: in the spleen, liver, heart, pleura, skin, muscles, etc. It is consequently along with the process of purulent infection, as this was understood by the preceding generation of physicians, and along with the process of fat embolus, as this fact is admitted today, that we place the process of absorption and of transport by the blood of figured elements, of softened or degenerated tissues.

Another objection has been made. "This theory is incomplete, and does not say what becomes of these wandering bodies." We wish to point out that we are building no theory, but are content with presenting facts. We have said, also, that we explain by the transport of foreign bodies, em-

bolus, metastatic phenomena, infections, generalization, etc. This proposition takes in all, and we can only quote some writers in order to be more explicit. When the foreign bodies are very small, but non-infectious, they obliterate some fine capillary, which is soon relieved of work by neighboring capillaries, and the phenomena passes unnoticed.

When the foreign body is a little larger it produces a capillary embolus whose only appreciable effect is a small hæmorrhage. When still larger, they provoke, by obliteration of the vessels, local anæmia, œdema, hæmorrhages, infarctus, necrobiosis, etc. On the contrary, when the foreign bodies are infectious or susceptible to proliferate in the tissues (all microbial infections and malignant tumors), as is almost always the rule in the cases which we are now demonstrating, they provoke metastatic phenomena, abscesses, different forms of infections, generalization, and distant recurrences, etc.

Regarding the microbial infections, it is admitted today that microbes may directly penetrate into the blood or be introduced by the leucocytes, which, after having gone out of the vessels by diapedesis, return along the same road when they have become filled with microbes (phagocytosis).

We here show another mode of penetration. Cells coming from tissues, and strings of mucus driving along numerous micro-organisms are also to be found in the blood. (Fig. 4, 5, 6). A few words now only remain for us to say. The expression

of *collecting sewer*, when applied to the blood, seems to us rather excessive. When the blood of patients having microbial diseases or softened tumors of the intestines, uterus, brain, or glands, is examined, and putrefying masses are found, one certainly has the right to employ this expression.

Some of our friends have intimated that it is very strange to observe so few accidents when the blood so often transports these foreign bodies. To this our reply is easily made. Accidents are very frequent, but they often pass unnoticed or remain unexplained. It is with clinical observation as with diagnosis, more often only the principal symptoms are noticed, which, by their prominence, naturally call the attention, but often the physician finds himself in the presence of an interrogation point. Now what happens even to the most conscientious clinical observer? He sees his patient once or twice a day, looks after the temperature, circulation, respiration, digestion, micturition, the condition of the nervous system, and that is all. In the interval of the visits the patient has had cardiac distress, palpitation, syncope, dyspnoea, vertigo, pains localized in some part of the body, or other nervous troubles, general malaise, that he cannot explain, etc. The physician gives to these symptoms the first interpretation that presents itself to his mind. The real cause escapes him, and even if the accident occurs under his eyes, he is often very much embarrassed to give

any interpretation to it. Now, if he will do as we have done, he will come to his patient with a microscope when the case really merits this trouble. Now, if he will examine the blood and the other organic liquids, he will soon have the explanation of the symptoms. This brings us to the diagnosis. Every time that the sagacity of a physician is faulty, if he will examine the blood and the other organic liquids, he will soon be relieved of his hesitations and his doubt, to the great benefit of the patient.

We begin to see quite frequently patients whose pecuniary situation allow them to travel, and who, after having gone to the principal cities of Europe, after having crossed and visited both Americas, come to us with packages of prescriptions and diagnoses from celebrated physicians. Nine times out of ten they have gone through the world with the trouble labelled "Neurasthenia" when there is not a drop of their blood which does not contain the bacillus of tuberculosis, and their sperm is also alive with it. (Figs. 9, 11). The physician waits in order to recognize tuberculosis, and by this time it has riddled the joints with abscesses and the lungs with cavities—consequently, only the ultimate manifestations of the disease are diagnosed. It is not recognized when it is still limited to the digestive tract or the mesenteric glands.

Nevertheless, these so-called neurasthenics ask nothing more than to be cured, and in fact, they *are* cured

by arsenic, creosote, and phosphatic preparations. What should be said also of unrecognized malaria and an old syphilis, ignored even by the patient himself, and which may be found in the blood? We can still go further. Later works will confirm and complete this. We have worked with perseverance without any end other than our own instruction. We have had the satisfaction to have worked with fruit, and the conviction that we are on the right track as far as original results are concerned. We give under a synthetic form a well documented and general sketch of these researches. We have not had the time to undertake a large bibliographical compilation which we admire, without, however, ever intending to do so.

Without going further, we will borrow some citations from learned professional men, which will greatly aid the facts that we have just put forth. Hayem says, (1) "Without counting the parasites and the microbes, the blood may contain anatomical elements and solid bodies which are foreign to its normal composition." "In the first series of facts, these foreign substances are simply carried along by the blood, which gets rid of them rapidly after having deposited them in vessels too narrow to permit of their passage through. Their presence in the blood is consequently essentially temporary, and it produces rather troubles in the circulation than a change in the blood properly speaking. Among these elements and foreign bodies, which are, so to speak,

simply passing through the blood, may be counted fragments of clots coming from various sources, the débris of softened and ulcerated atheromatous foci, epithelial cells which have become detached from the lining membrane of the vascular walls in disquamative endarteritis, or elements of tumors which either directly enter the blood by the veins or indirectly through the lymphatics."

"In examination of the blood, more or less altered epithelial cells will be about the only things discovered. This is at least what I have noted in a case of purpura hæmorrhagica which appeared to be in relation to a diffused disquamative endarteritis."

"In another series of examinations the foreign bodies which were added to the normal structure of the blood are produced by a pathological change of organs called hematoporetic, and by their more or less lasting presence in the blood constitute, properly speaking, an anatomical change of this liquid."

Dr. A. Gilbert (2) says: "The presence of various neoplastic elements in the blood has been observed. Sarcomato is (Simon) and epithelial cells (Nepveu). Endothelial cells detached from the internal coat of the vessels (Hayem). Granulations of undetermined nature, octadric crystals (Charcot) and lastly nucleated red-blood corpuscles, and melanic pigment granulations."

We now borrow from Hallopeau (3). "The penetration into the vessels of cancers or tuberculous pro-

ducts, or normal elements such as fat from the bone marrow, may also be a source of embolus," and further on he says, (Page 439): "By this example it is to be seen how considerable is the part played by embolus in pathology, and what service Virchow has rendered to the profession by bringing it into prominence. It becomes still more so if to this process the migration of tumor elements is attributed, as well as that of parasites, microbes, and other organized infectious agents, because one is then obliged to adopt this theory for explaining the generalization of tumors, pyretic metastases, the occurrence of secondary accidents after the appearance of indurated chancre, the development of secondary nodes after inoculation with tuberculus or the products of glanders, the general eruption which succeeds the local eruption produced by inoculation of variola, and lastly by various manners of generalized infection, only making exception for those cases which are frequent in which the agent which produces them may be considered a soluble one."

"If this is exact, it will be most important to understand the conditions which favor the passage of infectious particles in the blood, and still more those which leave the lymphatics by crossing through their walls and produce a localization of the disease. By working in this direction one will without doubt find that in certain tissues the penetration of particles into the vessels is accom-

pished more easily, and with this fact the generalization of the disease is more easily accomplished.

"It appears true for this reason that nasal diphtheria is more often complicated by infectious phenomena than diphtheria of the pharynx, that abscess of the bones give rise more often than others to purulent infection, and that bites from dogs having hydrophobia are more often followed by accidents when the lesions are inflicted on the face."

"In the generalization of infections characterized by formation of nodular neoplasms, (tuberculosis, syphilis, glanders) direct and continued propagation by the lymphatic walls should be taken into account, but the distant propagation necessarily supposes transport of infectious particles. The mechanical conditions in which it is produced perhaps can contribute to the explanation of secondary localizations, and show, for example, why pulmonary tuberculosis complicates almost always disease in other organs."

"It is the same for cartilaginous cancers, and sarcomatous neoplasms, whose elements have the property of multiplying in the tissues where they have been transported, just as the entozoaires do. Embolus also occurs, as we have said, in the migrations of parasites."

It is in this manner noted physicians express themselves regarding the transport by the blood of figured elements in the tissues. As we said above, in all the cases which are in the domain of surgery, the absorbing surfaces are much larger, and the

transport much more frequent. Let us now see what these authors say regarding the transport of microbes in the torrent of the circulation.

"The blood sometimes plays the part of a germ carrier. Even in certain localized infectious diseases in a goodly number of cases the morbid process remains limited and local, but this is not a fact without exception, and certain diseases which are in the first place localized, sometimes produce secondary manifestations at a certain distance from their original seat, which are known under the name of metastases."

"These metastases, examples of which have been mentioned, dysentery, erysipelas, pneumonia, etc., are the result of transport of germs to other parts of the body. The pathogenic microbes which are developed at the primary seat of the disease may enter into the current of the circulation."

"The lymphatic vessels are nearly always invaded by the germs, and the germs are conducted by them into the corresponding glands, where they usually meet an impenetrable fortress. From this fact results the swelling of these glands so well known in specific inflammations, as for example, erysipelas, diphtheria, etc., but it is very probable that the blood vessels give passage just as easily as do the lymphatics to pathogenic germs. Very happily the latter are usually met with in the blood, and which is a media in which they do not live long, thus assuring in a definite way, the localization of the process, but this

general rule (in local affections) has many exceptions."

"Germs are consequently carried by the blood and are later on deposited in certain points of election where they seem to find a media particularly favorable for their needs.

"Gonorrhœa offers us one of the most interesting examples of this kind of manifestation."

"Now this disease, as is known, remains localized in the majority of cases, and sometimes produces inflammation in the tenderest structures and the serous membranes of the points, and in some cases, often in the endocardium. Now how can one understand these manifestations of disease without admitting the transport of the germs by the blood. In other cases these germs, instead of penetrating only into the blood, are transported in the interior of the leucocytes which are impregnated, so to speak, at the diseased point, or they may be contained in the veins in the neighborhood of the diseased part."

"Distant lesions are produced by this mechanism, that is to say, by embolus, without it being necessary to admit a general infection of the economy."

"The seat of the secondary process no longer depends, under these circumstances, on the affinity for certain tissues by the germs carried in the blood, and they directly result from this mechanical condition of the circulation,—for example, abscess of the liver in dysentery. "In local infectious diseases which become generalized at a certain epoch of their

evolution, as for example, diphtheria, it is difficult to determine the respective parts played by the blood and the lymph; but whether the germs arrive directly or indirectly into the blood, it is always in definitive by the intermediary of the latter liquid that infection of the entire organism is produced."

"As to the evident role played by the blood in general infections which begin as such, it is too well known for us to insist upon it."

(Hayem. Du Sang. Page 447). "The microscopical examinations, culture and inoculation into animals of blood taken from the periphery, has permitted to find microbes of the existing morbid condition in quite a large number of cases. Recurrent fever, anthrax, acute granular tuberculosis, glanders, the pneumococcus, the streptococcus, the staphylococcus, the septic vibron, are also to be found."

"Dr. Girode has found in a case of malignant endocarditis the bacteria that Lion and myself have mentioned. Neulauss has also found Eberth's bacillus in the blood taken from rose spots. (Fig. 4). As to schizomycetes, Labadie-Lagrave. (Fig. 5), recalls that besides the parasites which really live in the blood, microbes of influenza, of typhoid fever (Meisels), tuberculosis (Weichselbaum in the cadaver. Meisels in the living), glanders (Jaksch), etc., have all been found accidental in this liquid.

Consequently, at the present day the constant presence in the blood of the micro-organisms of *recurrent*

fever (Fig. 7.) of *malaria*, of *symptomatic anthrax* and of the *septic vibrión*, and the accidental presence of some other microbes is admitted. As for us, we have found, and we constantly find in the blood of infected subjects a large number of various types of microbes whose presence in the blood is neither admitted nor known (Fig. 8), besides varieties mentioned above.

It is to be understood that these micro-organisms do not live in the blood, that they only pass through it, and that they are rarely met with in large numbers: but what difference does that make? They will be found if one will take the trouble to look for them, and if their presence is wanting, which in the pathological point of view is of the first importance, it preserves in the diagnostic point of view, all its value.

Two recent communications have been made, one by myself at the Third Congress for Tuberculosis (6), the other by Dr. Golosz at the Academy of Science (7), which have singularly extended the importance of micrographical and bacteriological researches for precision in diagnosis. In the first-mentioned work I established the polymorphous character of tuberculosis and gave the description of a technique by which micro-organisms of this infection in the state of zoogloae, cocco-bacteria, coccotrix, bacilli, filaments (Fig. 9) which are to be found in the blood and in other organic liquids.

In the second work Dr. Golasz relates that since 1888 he has found in cases of syphilis a polymorphus

microbe belonging to the family of cladothricia, and that he has been able to cultivate this microbe in splenic nuclein broth, and at the same time he describes his method of staining. For more than two years we have been initiated in this discovery, and we must acknowledge that in all syphilitic patients that we have examined, we have found in the blood and in other liquids of the economy, one or more forms of the cladothrix of Golasz, and we also must acknowledge that when our diagnosis has been based on these microbial forms, we have never been mistaken, and consequently the diagnosis of syphilis may be added to the ordinary microbial diseases, such as tuberculosis. Thus, to sum up, by the aid of proper coloring reagents, one can by hematological researches make a diagnosis of the larger proportion of diseases in a precise way.

Such are the principal elements of diagnosis by blood examination. We cannot in this short paper establish the diagnosis of each case in particular, but we will give as a conclusion a few examples.

It will be seen that the combination of the various changes observed admits not only of recognizing the disease, but also its degree of intensity and sometimes its seat.

(Case I.) Man, age forty, in the medical service of the hospital, for an affection presenting all the symptoms of pericarditis with effusion (distress, dyspnoea, precordial dullness, displacement of the heart, weak pulse, etc.)

Histological and Bacteriological Examination of the Blood. Very pronounced lymphocytosis. Normal number of polynucleated leucocytes. The number of eosinophile cells is increased. No nucleated red globules, no fibrinous reticulum, no microbes. The absence of leucocytosis and fibrinous reticulum, the increase of eosinophile cells allowed us to discard the diagnosis of a suppurative lesion, and the case was not, consequently, a pericarditis. The presence of a normal quantity of polynucleated leucocytes, and the age of the subject, demolished the diagnosis of a lymphatic leucocythemia.

Now, as is known, lymphatic leucocythemia is almost exclusively met with in subjects from eighteen to twenty-four years, and the polynucleated leucocytes which occur in general hypoplasia in these subjects are consequently not so numerous. On the other hand, the superabundance of lymphocytes, the increase of eosinophile cells corresponding to the normal number of polynucleated leucocytes are characteristic of lympho-sarcoma. Our diagnosis was consequently *lympho-sarcoma of the anterior medias tinum*.

Two days later an enlarged gland was discovered in the supraclavicular region on the left. On the following day the spleen was tumefied, and this tumefaction rapidly increased, and on the next day the inguinal glands were found enlarged, and at the end of fifteen days the patient died. At the autopsy, a lympho-sarcoma of the pericardium

with an enlarged spleen weighing three kilos, was found. Mesentric glands, general lympho-sarcoma.

(Case II.) Man, age sixty-eight, tumor of the right testicle, the size of a cocoanut, solid, and of a uniform sarcomatous consistency, indistinctly lobulated, without any particular change. Pains, with enlarged inguinal glands on the right, extreme anæmia, cachectic aspect. No *visceral* disease.

Microscopical and Bacteriological Examination of the Blood. Red corpuscles, 2,500,000 per cubic millimetre instead of 5,000,000. Hemoglobin, 60 per cent. instead of 100 per cent. Chlorocytosis, slight microcythosis, no poikilocytosis, no nucleated red globules, hematoblasts in normal quantity. Polynucleated white globules slightly increased in number. (Slight leucocytosis.) The number of lymphocytes is greatly increased, and ten of them may be counted in each field of the microscope instead of one for every four microscopic fields. (Ocul. Zeiss, number 3, immersion 1-12). The proportion of lymphocytes is 60 for every 100 white globules, instead of 17 for every 100. Eosinophile cells in normal number. Hematologic diagnosis: Lympho-sarcoma. Anæmia found by examination of stained blood, by Erlich's method, surprised us, because the patient ate in sufficient quantity. We were then induced to make a new examination of the blood from a bacteriological point of view, by the Koch-Ziehl stain. We found numerous red zoogloæ and rods.

Castration and ablation of the inguinal glands.

Histological examination of the tumor demonstrated that it was a lympho-sarcoma of the testicle. Besides there was a portion of the gland which was not invaded by the sarcoma, but was inflieted with small cheesy nodules. The bacteriological examination of these nodules was made immediately after the operation, and showed that they contained in their center some cheesy matter and tubercular bacilli, and at the periphery were to be found a few Koch-bacilli.

(Case III.) Woman, age fifty-eight. Strong and well up to December, 1893, when, on a trip to Calenes, she was taken sick there. She had a fever with an evening rise, sweats, complete anorexia and general debility. She came back to Paris in May, and came to the hospital on June 8th with a tumor of the right tonsil the size of a walnut, and an enormous lump of indurated glands in the right arm pit, and some smaller glands in the groin. There was no other visceral lesion. The axillary glands on the left provoked such pains that the patient begged us to get her rid of them.

Examination of the Blood. Red-blood corpuscles, 3,000,000. No microcytes, no poikilocytosis, no nucleated red globules. Hematoblasts normal, polynucleated leucocytes three to four in every visual field, instead of one in every fourth visual field. Eosinophile cells normal.

Bacteriological Examination. Koch-Ziehl method: filaments measuring

20 micromillimetres with transparent and stained points. (Endo-spores, Marpann's Involution Type), granulated bacilli, numerous zoogloæ.

Diagnosis. *Rapidly progressing tuberculosis localized in the glands.*

June 11th. Abolition of the right tonsil, and the bunch of axillary glands on the left. These glands contained large cheesy foci. Bacteriological examination of the tonsil and the glands shows the presence of numerous tubercular bacilli, especially in zoogloæ, by first infection of the wound in axilla.

June 23d. The pains departed immediately after the operation.

July 2d. The patient has begun to cough. Galloping phthisis, softening of the glands in the right axilla. Died from general tuberculosis on July 15th.

(Case IV.) Man of fifty-three years, extremely strong constitution. Sent for his physician in 1892 for symptoms of intestinal oeculsion and dysuria. A purgative was given which produced violent efforts of defecation, and which resulted in the expulsion of a large mass of fæces and a consecutive diarrhœa. We were called to him eight days later, and we found a tumor in the pelvis the size of an adult's head; round, solid, and situated over angle primary iliac arteries between the bladder and the rectum, and having no communication with these organs. The intestinal occlusion and the dysuria were due to the compression exercised by this mass. We saw the patient four days later, and found

that the day before he had passed by the rectum some pus slightly tinged with blood. The tumor had diminished one-half its size. Some urine was examined and was found to be normal. In the stools we found some debris of a rosy or whitish tissue which we collected with care, hoping that it came from the tumor, and would be an aid to use in demonstrating its nature.

Microscopical examination showed that this tissue was made up of epithelial cells of the intestine, pus cells, and red blood corpuscles. These facts did not enlighten the diagnosis, so we withdrew some blood from the patient's ear.

Examinations of the Blood. Slight anæmia and leucocytosis. Several bacteriological preparations were made that, stained by Koch-Ziehl method, demonstrated the presence of filaments measuring from 15 to 20 micromillimetres, having clear spaces and stained points. (Marpann's Involution Type) and enormous zoogloæ. We then again examined the other stool by the same method and we found some zoogloæ and a few filaments staining red; but the spores that are frequently found in the intestine may stain the same color, and for this reason, in order to demonstrate tuberculosis, we were obliged to work until we found Koch's bacillus, and these researches were rapidly crowned with success. We made the diagnosis of suppurating mesenteric tubercular glands, which had opened into the intestine.

Three [weeks] later no trace was

left of the tumor, the diarrhœa had stopped, and all the symptoms had disappeared, and the patient was recovering his health little by little under the influence of arsenic, creosote and phosphates. In two similar cases the examination of the stools were sufficient to make a diagnosis.

(Case V.) Man, age fifty, strong, well built, never sick, was suddenly taken with abdominal pains on the right side with rebellious constipation. As he was rich, six physicians were called at once. One of them made a diagnosis of nephretic colic; another, cancer of the intestine; the third, intestinal rheumatism; the fourth, intestinal occlusion; the fifth, peritonitis; the sixth, typhilitis.

Examination of the Blood. Leucocytes very abundant; fibrinous reticulum; absence of eosinophile cells, but short rods, which are only partly stained by methylene blue, and do not stain with Koch-Ziehl. Diagnosis: Suppurating phlegmasia of microbial intestinal origin.

A close examination of the patient revealed the focus in the right iliac fossa. Laparotomy *Suppurating perityphilitis*.

(Case VI.) Man, age thirty-five. We had operated on him for the first time, in 1890, for a suppurating osteoperiostitis of the right fifth metatarsal bone by incision. Erosion of the diseased bone, iodoform, sublimate dressings. Slow cicatrization occurred at the end of three months. The patient came back to us, in December, 1893. Some new abscesses opened spontaneously on the external side

of the foot, and had left some fistulæ, great œdema of the entire foot, the fistulæ are lost in the midst of the soft parts. But deciding to perform another operation, we wished to know if the accidents were not due to constitutional disease, tuberculosis or syphilis. Clinically, the patient presented no trace of visceral tuberculosis, when questioned as to syphilis, he declared that he had never had any symptoms which could be attributed surely to this disease.

Examination of the Blood. The characters of the figured elements of the blood are normal, but, nevertheless, there is a notable increase of hæmatoblasts and a slight increase of œsinophile cells.

First Bacteriological Preparation. Staining with Koch-Ziehl gave no result; consequently, tuberculosis could be excluded.

Second Bacteriological Preparation. Staining by Golasz's method showed rods which were swollen at both extremities, measuring 10 micromillimetres in length, and the spores having the shape of large diplococci, some types having all the characters of cladothrix that were habitually met with in syphilis, especially in secondary and tertiary accidents.

Diagnosis Osteo-periostic lesion of syphilitic origin. We prescribed iodide of potassium at the dose of four grammes a day, and injections of sublimate into the fistulæ. At the end of eight days the œdema of the foot had diminished to one-half its size, and the fistulæ were only discharging a few drops of liquid.

Owing to this remarkable cure, all idea of operation was given up, and we advised the patient to follow this treatment. Amelioration progressively became more marked, and even rapid, so that at the end of five weeks the foot had gained its normal shape, and the fistulæ were completely closed.

(Case VII.) Woman, age sixty-two. Rebellious neuralgia, of the muscles of the neck, which were treated without success by belladonna, morphine, tincture of iodine, blister, and the actual cautery, as well as salicylate of soda, quinine, antipyrine, and finally by section of trapezium. She denied any syphilitic symptoms.

Examination of the Blood. Intense anemia without leucocytosis, increase of hæmatoblasts and œsinophile cells. Staining by Golasz's method revealed the presence of oval spores more or less elongated, containing two chromatic points, and a few bacilli, having clear points (Lustgarten's types); these micro-organisms were characteristic of the cladothrix that we usually find in syphilis.

Protoiodide of mercury and iodide of potassium were prescribed. The attacks of neuralgia became less frequent, and were very much attenuated after the second day, and disappeared completely after thirty-five days of treatment.

(Case VIII.) Woman, aged twenty-six, with a vesico-vaginal fistula, which had been unsuccessfully operated on four times by an excellent surgeon.

Her blood was examined before the

fifth operation and was found to contain malaria plasmodia in such quantities that the red corpuscles were literally infected by them. Pigment was found in great quantity in the plasma.

Quinine and arseniate of soda were prescribed in large doses. The blood was examined once a week, and at the end of six was found about normal. Operation was then advised and performed, with complete success.

(Case IX.) Woman, aged twenty. Was operated on for uterine fibroid by vaginal hysterectomy. Has never had any frank attacks of malaria. The day following the operation, and without any discoverable complication, she was taken at noon with an attack of fever (41° C) which lasted three hours. Evening temperature, 38° C. The blood was examined the next day at 11 A. M., and was found to contain Laveran's bodies, while the red corpuscles were undergoing degeneration and contained no hæmoglobin.

The diagnosis of *malaria* was confirmed and the exhibition of quin-

ine and arseniate of soda was sufficient to stop all the unpleasant symptoms, and the patient made a good recovery.

We could multiply cases, but the above will, we think, suffice to demonstrate the real value and importance of hæmatological examinations as an element of surgical diagnosis.

We append fourteen plates taken from our preparations of blood taken from the ear.

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Hysterectomy.*

JAMES F. W. ROSS, M.D.

The operation of hysterectomy has been gradually going through stages of evolution for some years past. For a time it was considered impossible to perform the operation without producing a pedicle. Vaginal hysterectomy then came into vogue, and with ligature and clamp on the broad ligaments, the uterus was removed. The serrenocend of Kœberle then took the place of heavier clamps that were used previous to the last ten years, and it in its turn has again been almost discarded.

The great question regarding this pedicle was: Shall it be treated intra peritoneally, or shall it be treated extra peritoneally? I have improved my technique for the operation of abdomino-vaginal hysterectomy, and it is as follows:

The patient is prepared previous to the operation in the usual way, the abdomen thoroughly disinfected, the bowels emptied, and in addition to this, the vagina is thoroughly sterilized by bichloride douching and iodoform gauze packing. The vaginal pack is placed in position twenty-four hours before operation. The abdomen is opened in the median line, the tumor raised from its bed. In those cases in which it can be accomplished,

an opening is immediately made through the posterior vaginal wall close to the cervix. This is accomplished by means of an ordinary uterine sound passed into the vagina behind the cervix. It can be felt in this position by the finger pressed down upon it from the abdomen. It can even be seen projecting at the lower and posterior part of the pedicle of the tumor. An incision is then made with a knife on this sound in the direction of the length of the vagina, and not across it. If made lengthwise there is less bleeding. The index finger of the left hand is immediately introduced through the opening, and the outlines of the cervix can now be felt as this finger is protruding from the abdominal side into the vagina. The sound is now withdrawn, and the needle, I show you for the purpose of passing the ligatures, used. The needle is passed in through the opening, guided by the finger, is made to enter the inter-abdominal vaginal tissues, to penetrate them and emerge on the peritoneal surface. In this way a portion of the tissue joining the cervix to the vagina is included in a strong ligature. The needle is then passed on the opposite side and a similar portion of the vaginal wall is ligated. The knife is then used to cut on each side outwards from the

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median incision. The needle is again passed on the finger, and this time the uterine artery, with the base of the broad ligament on each side, is encircled by a ligature just as we encircle it when the procedure is carried out from below. In addition to this it is necessary, of course, to transfix and ligate the upper portion of the broad ligament and tie off the blood supply entering the uterus through the ovarian vessels, and separate the attachment of the broad ligament to the tumor. These are very tightly tied; the base of the broad ligament on either side is then cut through by an extension of the previous lateral incisions. The knife must be kept closely hugging the cervical tissue.

In some cases I leave a small portion of the anterior surface of the cervix in order that the ureters may be more widely avoided. The needle is then again passed and brought out on either side, and the vaginal tissue between the front of the cervix and bladder is then ligated. There is then frequently a small portion left in the median line just behind the bladder, and this I tie off by encircling it with a piece of silk. After this tag is cut through, the tumor lifts out from its bed, and nothing is to be seen but three ligatures on either side and one in front, and a small hole opening into the vagina. The ligatures are now gathered carefully together and the ends tied in two separate bunches; those on the right side are tied together, and those on the left side are tied together. If all hæmor-

rhage has been checked, as it must be if the ligatures are properly applied, a pair of forceps are passed up through the vagina, the blades are opened and the ligatures are drawn down together with a twisted tampon of iodoform gauze made large enough to fill the vaginal opening. The ligatures and gauze are then drawn down, the end of the gauze cut off so that it is now flush with the peritoneal surface, and a drainage tube of glass is inserted through the abdominal incision into the cul-de-sac of Douglas. The intestines are now forced into position by a little kneading, and the abdominal incision closed in the usual way.

On looking down from above at the vaginal opening, the peritoneal surfaces will be found drawn closely together by the inversion of the vaginal apex and broad ligaments. This is the ideal operation that can be performed in all cases in which the tumor is growing from the upper part of the uterus, and in which the uterus can be drawn up far enough to permit the operator to enter the vagina without danger of damaging important structures. I have performed the operation several times exactly according to this method. It leaves nothing to be desired.

CASE I. Miss G., age thirty-four. Suffered from menorrhagia. Had one ovary taken out by a surgeon three years before; the other one was left behind owing to the fact that it was buried beneath the tumor. Menorrhagia continued. Tumor extended to the umbilicus.

Operated on in Toronto General Hospital Pavilion. In this operation I used a clamp first to amputate the tumor, and then removed the cervix, with the aid of Eastman's staff in the vagina, by ligation in sections with silk of the inter-abdomino-vaginal tissues. No drainage tube used from above. Iodoform gauze packing and ligatures carried through the vagina. She made an excellent recovery.

CASE II. Mrs. H., age thirty-five. This patient suffered from a multinodular fibroid tumor. There were three nodules pressing into the interior of the uterus: they were large. Two years ago I removed the ovaries and tubes, but failed to relieve the hæmorrhage. Patient has been almost bloodless since. She suffers from uterine hæmorrhage, and is almost bedridden as a consequence. I decided to remove the entire uterus. The tumor was too large to permit of its removal by vaginal hysterectomy.

Operation done at St. John's Hospital. Patient placed in the Trendelenburg position. Uterine and ovarian arteries tied; incision then made on a sound that was passed up from below to the apex of the vagina behind the cervix. With three or four silk ligatures on each side, the intro-abdomino-vaginal tissues were tied off and severed, and the uterus removed. Iodoform gauze packing and ligatures drawn down through the vagina. Operation very difficult owing to the dense adhesions present. A small portion of the cervix was sliced off in front to prevent injury to

the ureters. The patient made an excellent recovery.

CASE III. Mrs. M., age forty. Operation done at the Toronto General Hospital Pavilion. I removed a large fibroid tumor with the aid of the clamp and ligation of the broad ligament. Then removed the cervix with the aid of Eastman's staff, as in the former case. Ligatures and iodoform gauze drawn down through the vagina. No drainage tube used from the front. Patient made an excellent recovery.

CASE IV. Mrs. H., aged thirty-nine. Patient suffered from a large fibroid tumor which was packed down into the pelvis. Before operation I decided that it was growing in the leaves of the broad ligament, but at the time of operation it was found that the pelvic portion had originally slipped down behind the uterus and had grown in the cul-de-sac of Douglas until it filled the pelvis. This was drawn up, delivered from the pelvis, and without any clamp or elastic ligature, entire removal of the uterus was accomplished. The uterine and ovarian arteries were ligated on each side. A sound was passed, by an assistant, into the vagina and a longitudinal incision made with a scalpel from above into the sound, and the finger inserted into the vagina. Three ligatures were then placed on each side to constrict the inter-abdomino-vaginal tissues. The tissues were severed close to the cervix and the entire uterus removed. Ligatures and iodoform gauze were then drawn

down through the vagina. In this case a drainage tube was carried to the cul-de-sac of Douglas through the lower part of the anterior incision. A small quantity of blood was removed through the drainage tube during the subsequent drainage. A vaginal injection, given to remove discharge, found its way out through the drainage tube above. This fact pointed out the danger of vaginal douching in these cases. Patient made an uneventful recovery.

CASE V. Miss R., aged thirty-eight. Patient suffering from a large fibroid tumor. Her abdomen was about the size of a woman in the seventh month of pregnancy. Operation done at St. John's Hospital. Abdomen opened by a large incision and drew out the tumor, tied off ovarian and uterine arteries, made a longitudinal incision on to a sound passed into the vagina. Three silk ligatures were applied on each side to constrict the inter-abdomino-vaginal tissues, and with iodoform gauze packing these were drawn into the vagina. A drainage tube was passed into the cul-de-sac of Douglas from the front, and a small quantity of blood was removed during the subsequent drainage. As in the last case, a vaginal douche given to cleanse the vagina, on the fourth or fifth day after operation found its way out through the drainage tube placed in the cul-de-sac of Douglas from the front on the dressings.

CASE VI. Miss B., aged forty. For three months I watched this case. She had a fluctuating temperature

and was in very ill health. Owing to the fact that the tumor bulged far into the vagina beneath the bladder, I felt loath to undertake the operation. She begged for relief. The bladder was drawn up to the umbilicus on the anterior surface of the tumor.

Operation done at the Toronto General Hospital Pavilion. Opened the abdomen and ligated uterine, ovarian and round ligament arteries; used no clamp or elastic ligatures. Opened the capsule, peeled it back off the tumor, and there was no hæmorrhage. Patient did not lose, during the whole operation, more than two tablespoonfuls of blood. Stripped down the tumor capsule and enucleated the tumor. An enormous raw surface was left, together with a hole in the vagina through which an adult fist could be passed. The broad ligaments were closed on each side by continuous silk suture. The vaginal aperture was narrowed by continuous suture. The iodoform gauze and ligatures were drawn down through the vagina. In this case two ligatures were placed behind where the capsule was thickened at the junction of the cervix with the vagina. A drainage tube was inserted from the front into the cul-de-sac of Douglas, through which a few teaspoonfuls of blood were removed during the first two days subsequent to the operation. Tube was then removed. In this case no vaginal douche was used. Patient made an uneventful recovery.

After the publication of Eastman's paper I supplied myself with a staff

similar to that used by him, but I have almost discarded it, because an ordinary uterine sound is just as good, and I prefer the vertical to the transverse vaginal incision.

I never fail to use the glass drainage tube. It passes in from the front through the abdominal incision. This is a most important point. There is likely to be oozing; there is likely to be, in spite of all care, some peritoneal contamination as a consequence of the opening of the vagina, and it is necessary that the cul-de-sac of Douglas should, by means of a drainage tube, be kept well flushed out. I do not mean flushed with fluid introduced from without, but the *vis a tergo* is assisted by the suction syringe, and, with the fluid removed, septic material is also removed. It is impossible to drain this sac of Douglas by the vagina unless a curved drainage tube is used, and even then the drainage is not nearly as perfect as when the fluid of the vaginal douche has come out through the drainage tube in front, and fluids syringed into the drainage tube from the front came out through the vagina.

During the process of sloughing, when the ligatures are being thrown off, there is considerable foul vaginal discharge, in spite of the iodoform gauze, and this can only be kept inoffensive by means of vaginal douching; but vaginal douching in the absence of a drainage tube is an extremely dangerous procedure in these cases. When no drainage tube is used I forbid the use of the vaginal

douche. I have one case at present recovering from this operation. The drainage tube was removed after three or four hours, and, as a consequence, we are afraid to give her a much needed vaginal douche.

There are other cases that cannot be treated by this method, cases in which the tumor is growing into the leaves of the broad ligament: enucleation must then be performed. To relate the method adopted in a recent case will best illustrate it.

In these cases the bladder is usually drawn far up on the tumor so as to reach perhaps to the level of the umbilicus. It is this complication that renders the operation so difficult and dangerous. An attempt should be made to discover the situation of the ureters, so that they may be avoided. One may be drawn high up on one side of the tumor, and the other may be away out of sight. A pair of forceps placed on the peritoneal covering of the tumor will mark the situation of the ureters and act as a useful guide.

The round ligament is now ligated with two ligatures and cut off between them: the ovarian artery at its entrance to the tumor, together with the broad ligament covering it, is ligated in two ligatures and cut off between them. We now search for the uterine artery: it can be felt pulsating beneath the finger. A needle is then passed deeply so as to encircle it: it is then tightly tied. The uterine artery may be included in the ligation of the plexus of veins and broad ligament on one side and may

not be included on the other; it varies somewhat in its position.

Having now satisfied ourselves that the blood supply to the tumor is cut off by the ligation of the round ligament artery, the uterine artery, and the ovarian artery on each side, we begin the process of enucleation. The peritoneal covering of the tumor is cut high up; this is stripped back a short distance and the capsule of the tumor is then cut into. The thickness of the capsule varies; sometimes it will be thicker behind than it is in front, and vice versa. It is well to avoid cutting through the thickest part of the capsule, and is wiser to go around it, if possible, to obtain the thinner edge for stripping back off the tumor. This is less liable to bleed. The capsule is then stripped back and there is no hæmorrhage, except when it is followed up rather too vigorously into some connective tissue septum that leads into a large vein. The hæmorrhage may then be fairly smart, but can be readily controlled by sponge pressure. It is not fresh blood, but regurgitant blood. The capsule is peeled down carefully and the finger kept closely hugging its very inmost layer, or, in other words, the operator must be sure that he is completely through the capsule before he begins his enucleation. In this way the tumor will come out like a pea out of a pod. At the close of the operation an enormous bare surface will present itself.

In the case I am just relating there was a hole in the vagina through which I could almost have passed my

hand. This was due to the fact that the tumor grew down below the bladder almost far enough to present at the vaginal outlet. It bulged into the vagina, and the vaginal wall over it was eroded and honeycombed. I closed this large opening together rapidly with a running suture until it was barely large enough to admit three fingers.

It is now well to pass a running silk suture along the open edges of the broad ligament in order to bring the peritoneal surfaces into closer contact. This, of course, is done on either side until the edge of the hole in the vagina is reached. The ligatures that have been applied to the blood vessels are then caught in a pair of forceps (passed upwards from the vagina) and drawn down into the vagina in order to invert its apex. The peritoneal surfaces are brought closely into contact and the large raw surface that, a few months before presented to the eye, has become completely closed by a covering of peritoneum. In this case, again, a drainage tube is inserted from the front into the cul-de-sac of Douglas.

There are very few fibroid tumors that cannot be removed by either of these methods. Of course, a subserous fibroid with a small pedicle may be removed by ligation of the pedicle; such a pedicle may be dropped into the peritoneal cavity and left, and the uterus, ovaries and tubes, unless oophorectomy be performed, will still remain in the abdomen. I have not used either the rope clamp or the serrenocend for

some time. They will soon be relics of a bygone age.

The convalescence of the patient, after either of the operations just described, is much more satisfactory and freer from anxiety on the part of the operator than the convalescence after the clamp or suspended pedicle. The iodoform gauze packing will drain well for thirty-six or forty-eight hours, but, at the end of that time, it becomes so clogged with mucous that it is of no further use and should be removed. The drainage tube I leave in until the sixth day, and then replace the glass with a rubber tube, that is left in for ten days longer and gradually removed by being shortened. The rubber tube is taken out at frequent intervals after the drainage tube track has been thoroughly formed, so as to permit of its ready reinsertion.

Eastman believes that after these long and tedious operations the peritoneal cavity should be flushed with hot water, so that the subsequent congestion will enable the peritoneum to deal with the excess of serum poured out. He considers that it is almost criminal to publish to the world that drainage can be dispensed with in supra-pubic hysterectomy. I have myself been astonished at the large amount of serum poured out subsequent to some of these tedious operations.

I have tried all the methods for the treatment of fibroid tumors with abdominal evolution. I have stitched up the pedicle after the method of Zweifel and have wondered many a

time why on earth I have left such a pedicle. I have fixed the pedicle after the method of Tait, Koeberle, Keith, and others; with the serre-noeud, the sloughing mass fastened in the lower angle of a newly made wound, as I have described it elsewhere, a torch over a powder magazine, a very unsurgical procedure. It is scarcely likely that I will ever use the wire clamp again. I certainly shall never leave a pedicle when the entire uterus can be removed. It is unsafe to constrict myomatous tissue after the method of Zweifel, because it will necrose and die as a consequence of the tight constriction placed upon it; unless tightly constricted it is sure to bleed. This myomatous tissue is evidently of a low order, as it is extremely prone to take on a necrotic change. I have in one case had a hole form into the bladder as a result of tension and a slough below the constricting point of the serre-noeud on the seventeenth day after operation. The bladder wall was not included in the wire, but the slough extended below the wire of the clamp, as I have seen it extend on other occasions when no bladder perforation resulted.

It is interesting to look back at the treatises of a few years ago and observe the ingenuity evinced in the various attempts to deal with the pedicle in supra-vaginal hysterectomy. I venture to say that in a few years these plates will be almost entirely eliminated from our text books.

I believe the ligation of the broad ligament in two places a better

method than that in which one ligature is applied to the distal portion of the broad ligament and a pair of forceps to the proximal portion, or that portion next the tumor. By means of the double ligature the ligament can be tied higher up and nearer the uterus: as a consequence there is less danger of a ligation of the ureters. One end of each ligature that is intended to come down through the vagina should be left at least six or eight inches long, in order that it may be left at least six or eight inches long, so that it may be pulled from time to time with gentle traction by the nurse a week or ten days after the operation and every following day until separated. In one case I cut the ligatures off short and experienced a great deal of difficulty in removing them. One of them worked its way back into the rectum and caused a hæmorrhage from the rectum when ulcerating its way through the rectal wall.

One argument in favor of the open vaginal drainage with long ligatures is, that we can never place a silk ligature of sufficient stoutness to control the hæmorrhage from large vessels in the abdomen without danger that subsequent trouble will arise from it. The silk used for the ligation of the stump of an ovarian tumor is liable to force its way out of the abdomen either through the fistulous track in front or by burrowing ulcerative process into the bladder or rectum. These ligatures find their way into the external world much more frequently than we suppose. It has

been stated that this only happens when they are infected. They frequently find their way out after the ligation of a rotten and septic pus tube, but they are also undoubtedly extruded after the most aseptic operations.

Baker Brown recognized this fact, and left his ligatures hanging out of the abdominal incision to permit of their subsequent removal, just as we now leave the ligatures hanging from the vagina, after total extirpation of the uterus, to permit of their removal. In performing a total extirpation one must not be lost in cogitation and in roundabout methods, but an immediate attack must be made upon the vagina, the sound passed in and the vaginal opening obtained. When this has once been accomplished, the completion of the operation is assured. I have had one case in which I endeavored to obtain this opening; was unable to do so owing to the dense adhesions present; and I was obliged to finish the operation by ligation and suture of the capsule. Some operators are crying out for vaginal operations, for vaginal hysterectomy in pelvic suppuration, and others are making all kinds of excuses for the retention of the cervix uteri in abdominal hysterectomy. They are thus tied to the old beliefs and are complicating what may otherwise become a simple operation.

It is rather strange to observe the whither and thither of the medical mind. It seems to be like the thistle down, blown here and there by the gentlest zephyrs. A wave passes over

the country, and the fashion is to remove the uterus when it is not diseased; another wave passes over the country, and it is considered inadvisable to remove a little piece of the cervix because it is supposed that we are doing too much. The medical, or at least the surgical mind, seems at times to be unreasonable. The poor vagina has been looked upon with awe for years. It has been theoretically supposed to contain numerous germs, virulent, poisonous, and unconquerable. Germs in other parts of the body are more docile and more amenable to chemical action, but the

potency of the poison of vaginal germs has been exaggerated. If gonorrhœal, there can be no doubt of their virulence; but surely gonorrhœa is not so prevalent that it must necessarily be found in the vagina of every woman, or the majority of women suffering from fibroid tumor requiring hysterectomy.

Apostoli's faith cure, as Joseph Price calls it, is gradually dying out like the morning mist before the rising, just as it did years ago in the days when the ecraseur was used to saw off the pedicle of a uterine fibroid.

481 Sherbourne St., Toronto, Can.

Ectopic Gestation.

N. W. WEBBER, M. D.,

*Professor Gynæcology Detroit College of Medicine, Gynæcologist to St. Mary's Hospital,
Fellow of the Detroit Gynæcological Society, etc.*

To the progressive physician very frequent demands are made on his skill for the relief of emergencies that admit of no delay, which in the hands of the more careless terminate with serious results to health, if not in death. In this age it is difficult to believe that there still survive those who are not only unwilling to admit of the necessity of physical examination in sexual ailments in the female, but who insist that such examinations are wicked and are apt to produce the results they aim to relieve. Thanks to special societies like ours, to post graduate courses

in our large cities, and to the training of small sections in the clinics of our colleges, this class of superannuates is rapidly diminishing, and soon will be numbered among the relics of the past. In the science of medicine many of the mysteries that have eluded the grasp of our predecessors, under the plodding works of the progressive class, have been brought to light, to appear simple and easy of explanation. There are yet many unexplained phenomena that have escaped the trained skill of the profession, but the fascination always connected with the unknown, stimu-

lating, as it does, the energies of the zealot, is slowly bringing them one by one into the known and explainable. One of the stumbling blocks to the profession in the past is the cause of ectopic gestation, and it possesses enough of the questionable to make it of interest to the present. Why natural phenomena should blunder with such untoward results has been a matter of controversy up to the present time. The history of this disturbance of natural causes from the middle of the eleventh century down to the present time is clear and concise. So also do we find the different forms clearly defined, although a sharp controversy has arisen as to some of the minor details.

The causes of this trouble, unimportant as they may seem to practical results, produce an unrest in the minds of those who delve after facts, and might be productive of good in its prevention.

The history of many who suffer from this accident gives evidence of previous endometritis, which we might assume would affect the tubal membrane and impair the functions of the ciliated epithelium, thereby preventing the impregnated ovum from being carried to the uterus. While viscid mucus is no barrier to the migration of the lively spermatazoa in its search after its mate, the impregnated ovum, a living body, has lost the propelling power of its male element and in the union has sacrificed its power of motion. Denuded spots are often found in the tubes,

just as we see them about the os uteri, the resultants of acrid mucus, bathing the parts, and if in the tubes, the ciliae are destroyed, the ovum is arrested, grows, and wherever this takes place we have the different forms of tubular and possibly one variety of ovarian pregnancy. Many of the cases of ectopic gestation give histories of previous inflammation of the pelvic viscera, and autopsies have revealed upon the same and opposite sides adhesions with bending of the tube and diminished calibre of its lumen. Uterine polypi and fibroid tumors may obstruct the passage into the uterus of the ovum, causing it to develop in the tube or at its junction with the uterus. Cases occur in which the corpus luteum is found on the opposite side, necessitating a twisting of the tube for its fimbriated extremity to grasp the ovary across the pelvis, thereby arresting the progress of the ovum through the tube. The peculiar manifestation of nature in the treatment of this trouble, as found in its digestion by the peritoneum, its abortion at either end of the tube, its calcifying it into a lithopedion or expelling it piecemeal through the abdominal walls, rectum or bladder, possesses an interest to us only because of nature's beneficent plan to work out her own relief. To the less pacific results of rupture, hæmorrhage, pain, invalidism and sudden death, our utmost energies are called in combat, and we have good reasons to boast if we prove the conquerors. It may seem far-fetched to offer any

suggestions in the way of prophylaxis, yet on account of its frequency it might be worthy of an effort.

It is only a few years ago that we accepted uterine cancer as a dispensation of Providence, but now we know that a lacerated cervix has the most to do in the cause of it. Uterine catarrh, if of a moderate extent, is accepted by a large number of the profession and the most of women as a perfectly natural condition. The same conditions existing in the penis, rectum or bladder would excite our apprehensions and cause our rejection by any first class life insurance company. Find out the cause of the catarrh, remove it, and in the cure effected if you have been too far-sighted, you at least produce a grateful relief. For its tonic affect upon the nerves, alternative effect upon the secretions, and its aid to free drainage, after displacements are attended to, no better results can be attained than by the continuous current of electricity, the negative pole catheterizing the uterus and, if it need be, the tubes. For the treatment of adhesions after acute symptoms have subsided, we may still keep in view the possibilities of the accidents we have mentioned, and with the other means we all know so well, promote absorption by the use of electricity, free adhesions, and restore the tubes to their normal position in the pelvis. The possibilities of prevention in this trouble, as I have said, is somewhat doubtful, yet not among the improbabilities. We have, however, to deal with it as a dread reality, and too

often after the last chance is lost in expectancy. To the family physician who is called on for all the ailments attending his patients belongs the responsibility of recognizing this trouble; and to him alone the great gravity of all the conditions appeal. Under the light of modern skill ectopic gestation is recognized as being of common occurrence, and few practitioners escape the responsibilities attending the emergency of its treatment. Many deaths formerly ascribed to idiopathic peritonitis and hæmatocele were undoubtedly due to this trouble.

Dr. Joseph Price has had 108 cases, and he thinks it occurs once in a thousand, while Parvin brings the number down to one in five hundred cases. The symptoms in a large majority of cases are emphatic enough to declare the nature of the trouble to the observent physician when called upon for treatment; then again some cases go on to rupture while under the care of skillful physicians without one untoward symptom. Usually we have the reflex symptoms and local changes common to normal pregnancy associated with amorrhœa and more or less pain upon the affected side. Price describes the pain as peculiar and severe; paroxysmal and long continued; neither colicky or cramp-like, but sickening. The menses differ in different cases, often absent, sometimes appear lighter in color, then again the flow may be profuse, containing shreds of decidua vera. To the unwary this appearance of shreds is symptomatic of

abortion. A digital examination reveals an enlarged uterus pushed to one side, with a pear-shaped mass upon one of the other sides very tender on pressure and somewhat movable.

If these various symptoms occur in women who have never had children, or a long time has intervened since the last birth, our suspicions should not only be strongly aroused, but active preparations for relief should at once commence. There can be no doubt as to what the physician should do in the pre-rupture stage, but to gain the consent to have it done is not always so easy. In this condition of moderate disquiet or absolute pain it is extremely difficult to make them appreciate the exigencies of their case, and an absolute refusal with an unqualified dismissal from attendance is often the fate of one who asks for an operation. With fears aroused, however, they seek the council of others; often to be sacrificed by their temerity; often to return after rupture has taken place, and often to be relieved by more conservative means. Does professional dignity admit of any but immediate submission to what we consider safe and skillful treatment? Some operators have been so eminently successful that they would immediately say no, when they proposed the knife. The glitter of steel so obscures their mental vision that they can see no other means of escape. In the hopes of saving life, by careful watching and by the use of other means that have proved successful in similar cases,

we are often justified in subordinating our wishes to the obstinacy of our patients. The germicidal power of electricity is very decided, and up to the twelfth or fourteenth week has rescued many cases from the knife of the surgeon. I have had three cases in the last three years which I have had diagnosed for me by others, from whom they considered they made fortunate escapes, and one case in which the diagnosis was made by myself. The first three cases I urged to return to the physicians they had deserted, for an operation; but on their positive refusal, I consented to treat them. The symptoms in all were practically the same we have mentioned, except in my own case, an unmarried girl who "drifted into my office to have her 'courses' brought on." The possibility of pregnancy had occurred to her, yet the absence of all symptoms, as she understood them, raised a doubt in her mind. A tumefaction was found in the left tube by digital examination, and its tenderness was only declared by pressure made directly upon it. She was a bright intelligent girl and very quickly grasped the situation by the aid of plates I exhibited to her. She was about nine weeks along, and in three weeks, by the use of the continuous current applied every other day the first week, and every third day later on, not a trace of the tumor was found and no escape of blood, membranes or any detritus of abortion took place; all were removed by absorption. Had this girl been married possibly rupture of the tube

would have been the first warning as to her condition. The other cases mentioned were treated in like manner with nearly like results. In one case a hard lump remains, diminished very much from its original size, and causing some mental disturbance on account of its presence. It will probably be removed by an operation.

I am aware in advance of adverse criticism to this mode of treatment by the large number of expert extirpationists of which this society is composed, yet that as good and true men outside of our circle have used it successfully, and advocate its use exclusively in the early stages, gives me courage to bring the subject before you for discussion. That no mistake may be made as to my position, I say use it before rupture has taken place if an operation cannot be secured. Anywhere from the first declared symptom, or from the time that ectopic pregnancy is first discovered up to the twelfth or fourteenth week, its use is justifiable, provided always close surveillance can be kept on the case. Laparotomy may be held in abeyance until the continued growth of the cyst makes it an absolute necessity, in which case it should be done at once. Examinations every other day after treatment has begun will give a mental outline of the increase or diminution of the cyst, and call for a continuance of electricity or its abandonment for the knife. Let me not be mistaken, if growth continues and increasing pain declares the imminence of rupture, insist upon an operation at once.

In many of the cases where rupture has taken place and comparative comfort has ensued as a result of favorable conditions to the foetus and its placenta—cases where expectant treatment is unable to say whether the termination will be in adpocere, calcareous degeneration, or suppuration with discharge somewhere—the success of an operation may be increased when preceded a few days by the use of electricity. The mortality from operations in this class of cases during the life of the child results largely from hæmorrhage due to stripping the placenta from its attachments. Electrocute the foetus, and in a few days the placenta has shrunken in size, danger from hæmorrhage in its separation has been diminished, and laparotomy may be performed with lessened risks.

In conclusion, I would say that prompt and correct diagnosis, while not always possible, may be made probable in many instances by careful study of symptoms and frequent examinations.

Professional reputations have been seriously impaired by the expectant treatment, and death by rupture following large doses of morphia in one case to my knowledge was threatened by a suit for poisoning. The physician in attendance simply attempted to allay pain during the pre-rupture stage without an effort to discover its cause, and when sudden death occurred as the result of shock from rupture, its cause was a great mystery and the result a great surprise. Disinterment of the body

with an autopsy and medical testimony satisfied the coroner, and the proceedings were stopped.
535 Woodward Ave.

Anterior Colpotomy.

DR. COTTRELL.

Mr. President, ladies and gentlemen: Your President has kindly invited me to speak, for a few moments, on an interesting gynæcological subject, and I desire to present to you for consideration an operation directed, mainly, to the satisfactory surgical treatment of posterior displacements of the uterus, and secondly as a path to the conservative surgical treatment of diseases involving structural changes in the uterus and appendages. Anterior colpotomy has its origin in Berlin, and Martin was the first to bring it to the notice of the medical world. He, however, used it only for the treatment of displacements. To Dührssen and Mackenrodt belong the credit of having adapted the operation for the treatment of many conditions of tubal and ovarian disease which were formerly treated through the abdomen. The technique is first to be considered, and its adaptability to conditions, other than displacements, later. I commend, as a procedure never to be neglected, the careful curettement of the cavity of the uterus, first for the sake of the cleanliness, and secondly for the well-known results of, by or through this

operation decreasing the size of the uterus. In posterior displacements this is always, I might say, in a state of chronic congestion, or hypertrophy, due to the abnormal position of the uterus. After the curettement, and washing out with sterilized water through the double current catheter, the vagina is thoroughly scrubbed with green soap in alcohol and glycerine, and then douched with a one to five hundred bichloride, followed by a wash of absolute alcohol, which, by the way, I consider the true antiseptic. The external genitalia and surrounding parts are treated in the same way. The uterus is now to be brought, if possible, into normal position, and the cervix in the grasp of a double tenaculum is brought to the vaginal opening. The instrument devised by Orthmann, a combination of uterine sound and tenacula, will be found to serve an excellent purpose here. The sound is first introduced, and then, with the tenaculum at the upper surface of the cervix, the two are brought together and locked.

The mucous membrane now being on the stretch, an incision is made extending from just below the meatus to the tenaculum and a transverse

one just above the tenaculum extending about a half inch on either side on the median line. The mucous membrane is now separated from the bladder and connective tissue in the neighborhood of the cervix, and extending up to near the meatus. The bladder is now brought into view. The transverse incision below the bladder allows this organ to be separated from its posterior attachment by the use of the thumb nail or scissors, and pushed up below the symphysis pubis and the fold of peritoneum forming the anterior cul-de-sac, exposed. This fold of peritoneum presents usually as a round bag and is not difficult to recognize. The question now arises as to the advisability of opening this sac. Authorities differ on this point, and, in my opinion, it is best, in uncomplicated displacements, where there are no adhesions to be freed or ovaries requiring examination, to leave the sac intact. Martin always opens it and brings the fundus out through the opening. Veit follows the non-opening plan, for the reason, as he says, that he does not desire to expose the patient to any more chances of trouble than necessary.

Moreover, the union between the uterus and the tissues immediately above the upper fold of peritoneum will be a hard and fixed one, and will not, in case of pregnancy, allow, as a peritoneo-peritoneum junction, a certain amount of stretching. The irritation of the needles gives all the elements required to set up adhesive inflammation. In a case reported by

Gusserow, where he did a section on a woman in labor who had previously undergone anterior colpotomy, the fundus was held down during pregnancy by this strong unyielding attachment, until the os, at the time of labor, presented toward the promontory of the sacrum, which would not have been the case had the two layers of peritoneum been reached.

The bladder now being out of the way, the uterus is successively grasped by double tenacula, the first at the cervix being removed, the sound withdrawn and the cervix pushed back toward the rectum. Another tenaculum is displaced above the first, and by steady traction of tenacula after tenacula, one above the other, gradually creeping up toward the top of the uterus, the fundus is soon found presenting at the vaginal opening. Beginning at the upper angle of the wound, the needles, armed with silk-worm gut, are now introduced through the mucous membrane, connective tissue and peritoneum down into the fundus and out on the opposite side in reverse order. About four of these are used, the bladder being carefully kept up out of the way until after the first suture is tied. Then there can be no danger of it being caught in the hold of the ligature. A continuous cat-gut closes the spaces between the sutures, and the uterus is held firmly in the position desired. The applicability of this operation for the treatment of diseased condition of the adnexa is easily recognized. In conservative surgery, for instance, diseased por-

tions of ovaries have been removed and the ovarian wound closed with fine silk or gut and returned to the abdominal cavity to continue its good work. Atresia of the tubes has been remedied by section below the diseased portion and then joining mucous and serous coats together, or, as I saw Mackenrodt do, sew the tube to the ovary after removing a small cyst of the ovary. Landau removes fibroids from the posterior surface of uterus and closes the uterine wound with cat-gut and returns the uterus to the abdominal cavity, closing the vaginal wound with silk. In one case, however, hæmorrhage was so severe as to necessitate hysterectomy, which was easily done by placing clamps on the broad ligament from above, instead of working from below. In the more radical operations pyo and hydro-salpinx, ectopic gestation and large ovarian cysts have been successfully treated by means of this method. The advantages of this over other operations for displacement alone are many, the principal of which are the ease of operation, without necessity for the opening of the abdominal cavity; the absolute certainty of no hernia; and positiveness regarding the condition of affairs surrounding the uterus. In case of dense adhesions, it is not advisable to operate by this method—the abdominal is much to be preferred; although this morning I did release a uterus which was closely bound down, by entering into the abdominal cavity through the anterior cul-de-sac, and with the finger passed over the uterus in the

posterior cul-de-sac, released the uterus, which was then put in position and sutured. I have had but one opportunity of doing this operation since my return (the case to which I refer), but I have had the pleasure of assisting my friend, Dr. Cushing, in eight, all for posterior displacements uncomplicated, and all have done well. Nevertheless, in Europe accidents have occurred: wounds of the bladder and three cases of tied ureters have been reported in Berlin. These latter were due to the carelessness of the operator in going too far from the median line in the silk-worm suturing. The chances of pregnancy seem with this operation to be much lessened. Martin, Mackenrodt and Dülhressen all agree on this point. Incidentally here to mention a matter, which to us in Massachusetts, where chloroform narcosis is almost interdicted, is an interesting and valuable point in the use of oxygen after etherization. This came under my observation while with Landau in Berlin. It is admitted by all that the nausea following etherization is one of the curses of delicate surgical work, and to rid one's self of this has been the aim of many operators. This, it seems to me, Landau has accomplished, although I do not remember if he claims to be the originator of it. It is the administration of pure oxygen gas immediately upon completion of the operation through an ordinary inhaler. The patient is given this gas for a period of five or ten minutes, or until the face of the patient begins

to assume a natural appearance. Out of fourteen consecutive cases, comprising all kinds of operations, extending from half an hour to one and a half hours, not one vomited, and he claimed never to have a case of nausea. I have tried it with fair results, but could not get my oxygen at the hospital in time to give it an extended trial. The administration

of ether and oxygen combined, by passing a stream of compressed oxygen gas through either, seems to me deserving of attention. Certainly patients take the ether with less struggle, have less irritation to the bronchial mucous membrane, and they seem to recover very quickly from the effects of the ether.

Suspensio-Uteri or Ventro-Fixation of the Uterus—Its Influence upon Pregnancy and Labor.

Dr. E. W. Cushing, Editor, Annals of Gynecology:

SIR:—Having recently had some unfortunate experience concerning the influence of suspensio-uteri upon parturition, I feel that it is highly important that this question be settled in an authoritative way as soon as possible. The only way to determine the question is by studying

the actual results as seen in the practice of all operators. I will be much indebted to any one having had a case of pregnancy following suspension of the uterus, if he will communicate the details of the case or cases to me.

Very truly yours,

CHARLES P. NOBLE.

1637 N. Broad St., Philadelphia.

SOCIETY PROCEEDINGS.

Suffolk Medical Society. — The Section for Obstetrics and Diseases of Women.

J. M. JACKSON, M.D., SECRETARY.

REGULAR meeting. Wednesday. Dec. 11, 1895. Dr. G. H. Washburn in the chair.

Dr. C. G. Cumston read a paper on "Lumbar Nephrectomy in Uterine Cancer."

Discussion on Anterior Colpotomy.

Dr. CUSHING.—I think this is a very valuable procedure. I met Dr. Martin last summer in London at the meeting of the British Medical Association, and he read a paper on Anterior Colpotomy which he gave me to publish. He also gave me the instrument just exhibited, and kindly invited me to go to Berlin. I could not go, but Dr. Cottrell went for the purpose of studying this as well as other operations. The procedure has had a gradual growth. Some time ago, in discussing the surgical treatment of retro-displacement of the uterus, I had occasion to trace the various methods which had been used beginning with that of Schultze, and then came to the operation of Schucking, which was the beginning of this. It was a bad operation, but led to better things. The theory of it was to take the retroverted uterus, bring it forward into position, and passing a needle through the fundus to try to bring it out between the bladder and the cervix. That was a

delicate thing to do. The string was passed round, and by tying threads together the fundus and cervix were drawn together. That brought the cervix into ante flexion, and it was found to stay so. The trouble was that the bladder was frequently punctured. Sanger next adopted the not unnatural procedure of making an incision and pushing the bladder out of the way, and that made a more scientific thing of it. That gave the cue to this later operation,—seizing the upper part of the cervix and climbing until you get up as far as you want to on the uterus. There are two ways of doing this. Jacobs makes an incision like that made in the preliminary anterior incision for vaginal hysterectomy, then dissecting the bladder away, the uterus is brought forward and sutures are introduced on each side. That method has the advantage that, if on opening the anterior cul-de-sac it is found that there is such condition as to necessitate removal of the uterus, the first part of vaginal hysterectomy has been formed.

It has the disadvantage that you are nearer the ureters than you are in the middle. Martin claims that there is more actual room gained in carrying the incision in the median line. As far as I have gone I have followed his method. I have operated on eight cases since last summer, and

they have done nicely. In none were there adhesions: they were simple cases or retroversion either in young women or in who have had children. In the regular operation for colporrhaphy, where there is retroversion of the uterus and descent of the pelvic floor, it is perfectly easy, after making the elliptical incision in the anterior vaginal wall, to fasten the bladder in anteposition with the same sutures which close the vaginal wound. I have done that several times with good results.

In regard to the use of this procedure as Martin and others use it for graver conditions, for removing the tubes and ovaries, for pyosalpinx, even for extra-uterine pregnancy, I must wait for further light on the subject. It seems to me there is no good in saving the uterus after the tubes and ovaries are removed. By removing the uterus we get drainage, and remove a future source of trouble, and if tubes and ovaries have to be removed, I should always finish the operation by removing the uterus, too. Martin reports excellent results. Last summer he had some 300 cases, in none of which had there been any rise of temperature or death: they had all recovered from the operation. It is comparatively safe, and with me it has superseded the ventral fixation which I was doing up to the time when I learned of this operation.

As to the oxygen administered with ether, my experience has been the same as that of Dr. Cottrell. The patients seemed to recover without any vomiting to speak of, no nausea, and one case of laparotomy passed flatus almost immediately after the operation, and had no further trouble with the bowels. Whether that flatus may have been oxygen we introduced, or whether it was simply the general effect of stimulation I do

not know. I think possibly she may have swollen some.

Dr. Northrup of Philadelphia has just published an article in which he recommends giving chloroform by passing a current of oxygen through it. If it shall be shown that passing oxygen through chloroform would rob it of its danger it would be a great blessing.

APPARATUS AND SPECIMENS.

Dr. E. W. Cushing also showed a sterilizer made on the well-known principle of the Chamberlin steam cooker, but constructed entirely of copper, nickel-plated. It is 15 inches in diameter and 27 inches high, in three sections: the lowest section contains a tray with perforated bottom in which instruments can be boiled in soda solution, while in the sections above dressings and robes can be sterilized at the same time. This form of apparatus is in use at the Carney Hospital and the Woman's Charity Club Hospital, as well as at Dr. Cushing's private hospital and many other institutions. For convenience, cheapness and durability, it is not surpassed, if it is equalled, by any sterilizer on the market.

SPECIMENS.

Dr. Cushing also showed two fibroid tumors extirpated entire by abdominal section, and one removed by morcellation through the vagina. He showed in the two removed from above the manner in which the tumor is enclosed in a capsule, composed of uterine tissue, and pointed out how in the operation of morcellation through the vagina this capsule is opened from below and the tumor is enucleated piece-meal from the capsule, so that the abdominal cavity is

not really opened until the very end of the operation, when the capsule which is in the uterus is removed entire. In a certain proportion of cases the tumor can be removed in

this manner from its bed in the wall of the uterus, leaving the latter organ in situ, and packing with iodoform gauze the cavity from which the tumor has been removed.

The Detroit Gynæcological Society. Regular Meeting, Wednesday,
February 5, 1896.

The President, Dr. N. W. Webber, in the chair.

“ECTOPIC GESTATION.” By D. N. W. WEBBER.

Discussion.

DR. CARSTENS. — I do not know that there is anything to be adversely discussed in the paper. I think I can subscribe to everything that has been said, as the ground taken is very fair. In cases of ectopic gestation where the foetus is still alive, I think electricity will sometimes stop the pregnancy, but, at the same time, simply stopping the growth does not always end the trouble. I have had quite a number of cases where the foetus has died as the result of electricity or rupture and the product of gestation has remained and caused trouble, often necessitating operation. In some cases a woman with an extra-uterine pregnancy may run to full term with very little trouble, and in the next case rupture may occur at four or six weeks or later, and before the physician can be called the patient is dead. This makes delay very dangerous, as our treatment may be stopped by sudden death from rupture. I have seen cases where rupture occurred, and I could not get an operation, and the woman finally recovered; that is, she did not die, but

still has trouble which will require an operation later on. I simply hold that, with treatment by electricity after the diagnosis is made, the patient is in constant danger. Many women have rupture which takes place through the membrane where there are few blood vessels, and there are very little after effects, in some cases the remains being entirely absorbed. I consider the proper thing to do when the diagnosis is made to operate, and if the foetus is dead and the remnants cause trouble, they should be removed. I see quite a number of cases every year where rupture has occurred some time before, and they always have trouble until everything has been removed.

DR. MAASS.—I have no personal experience, but I remember, a short time ago, reading a paper in which sixty such cases were reported, very few of which were operated upon, and most of them recovered without it.

DR. SMITH.—I think there is no doubt that electricity has been successful in some cases, but there are certain difficulties and dangers about that treatment. In the first place, we see few cases before rupture, the rule being that this is the first symptom we are called on to treat: but even in those cases where diagnosis can be made before rupture, it seems to me there is quite a bit of danger in electricity and the manipulations

that must take place. Now the fibrated ostium of the tube is not closed for six or eight weeks and the position of the ovum is extremely precarious, and it takes very little to cause hæmorrhage into the abdomen and death, and it seems to me that repeated examination of the tube prior to the six or eight weeks favors the condition found in the case, the specimen of which I showed today, *i. e.*, escape of the ovum into the peritoneal cavity. That would be an objection in the use of electricity in these cases. I have had no case where I was called before rupture, and the cases of rupture with moderate or severe hæmorrhage have given me no difficulty in diagnosis; but two cases of slight hæmorrhage bothered me, and in both I operated without making a diagnosis. If I saw a case prior to rupture of the tube I would prefer to open the abdomen than to wait.

DR. WILSON. — Not being a laparotomist, I have very little to say. I remember seeing a case some time ago in which the symptoms pointed to extra-uterine pregnancy, with tubal abortion. The prostration was very great and the patient was evidently sinking. Although satisfied with my diagnosis, I called in a specialist. He agreed with me and recommended immediate operation. In the meantime I had given the patient a hypodermic of strychnine and ergot; after we were through consulting she had revived a little. We stated the case to her and her friends, and they determined to wait, and in the meantime called in a third physician; by the time he came she had further revived, so he advised delay and ultimately she recovered, that is, apparently. In many cases where I have diagnosed appendicitis and advised operation, it has been refused and the patient got well with-

out it. I have no doubt that there are many cases of tubal abortion, if not tubal rupture, that recover. As to electricity, I must say I do feel there is some danger in dilly-dallying with these patients, but often if we make a positive diagnosis and advise operation, somebody else is called in and we lose the case.

I have often wished that there were some means of delaying our advice as to operation that would be safe for the patient as well as to the credit of the practitioner: but as these cases are seldom seen until after rupture has taken place, electricity can only rarely be of any benefit. Yet if seen before rupture, I think it should have a thorough trial, as directed by Dr. Webber in his paper.

DR. LONGYEAR. — I am sorry I came in too late to hear the paper, but knowing the writer's views on the subject of electricity in ectopic pregnancy, I know pretty well the gist of it. I agree in the main with what has been said in the discussion. Electricity will generally kill the fœtus, and if we were sure the first application would do it, and stop the growth, I believe it would be safer than it is; but we are not sure of this, and I think waiting is dangerous. We know the tube usually ruptures in the sixth or eighth week, and when that occurs the woman is in a dangerous condition. Some do get well without electricity and some without anything; some indeed get well after rupture, especially if it is into the broad ligament, so that the rupture is circumscribed. When the hæmorrhage is into the peritoneal cavity it is most difficult to diagnose, because there is no tumor to be felt; we have to base the diagnosis solely on the history and symptoms, and these are the most dangerous cases; so that I believe that, if the diagnosis of extra-uterine pregnancy has been made, the

safest thing for the patient is immediate operation. If the use of electricity not only killed the fœtus but caused the absorption of the products of gestation, it would be a better remedy than I believe it to be, as the death of the fœtus does not remove all the danger. I have a specimen here which illustrates this point. There was a typical history of extra-uterine pregnancy. She was taken with severe pain, constant in character, soon after conception occurred, but had no sign of rupture or hæmorrhage. She had missed her October and November menstruation, and during the latter part of December she menstruated a little more than normal, and said something came away which had an odor, and which I took to be part of the decidua. She was sent to the hospital and came under my care in the latter part of January, four months from the cessation of her last menstruation. I diagnosed extra-uterine pregnancy without rupture: operated and found the diagnosis correct, and the cause of the death of the fœtus. The specimen shows nicely the distended tube, the gestation sac with the fœtus in it, I should say six or eight weeks old, as it is about two centimetres in length. There is quite a large blood clot on the side directly opposite the attachment of the cord, but the blood had not escaped through the capsule, but the placenta had bled, and this I believe caused the death of the fœtus at the usual time of rupture, and accounts for the cessation of growth. Suppose it had been killed by electricity, here was a woman, an invalid, confined to her bed, with daily rise of temperature, and a great sufferer, though without any danger of hæmorrhage. She would probably have lived, and the product might have been absorbed in time, but the question is, should it be left, with all the

chances in view. I believe not. I think Dr. Wilson made a good point in comparing these cases with appendicitis. Cases of both get well without operation, but which will give the patient the best chance; I believe operation will do it. The cases of slight hæmorrhage mentioned by Dr. Smith are important, because they are the most dangerous and often extremely difficult to diagnose. I had such a case in which the hæmorrhage had been going on for two or three months. The case was very difficult to handle, owing to the exsanguination, and the woman died a few hours after operation.

DR. WARNER.—I never saw but one case of unruptured extra-uterine pregnancy, and then I did not make the diagnosis. She had had several children and came to me to see if she was pregnant. I thought she was. Just at that time I went away for my holidays, and when I returned I was surprised to hear that she died about a week after seeing me. I have seen one case of slow hæmorrhage in a woman who had been married nine years, but had never had any children. There had been no regular cessation of the menses, but there had been an irregular flow for some time. The diagnosis was made and the woman successfully operated on. The ovum was in the tube.

DR. WEBBER.—I would simply reiterate what I said in the paper, that I believe these cases ought to be operated on, but the mere mention of it sometimes so frightens the patients that they dismiss the doctor and fly to somebody else. Now I advocate electricity simply as the next best method of treating these cases. It should be used with very close watching, and if the cyst increases in size, insist on operation or give up the case. In the early stages of tubal pregnancy they are in a condition favoring

absorption after death of the fœtus has taken place, but I can understand that after the twelfth week it is not so likely to occur. It is only in the early stages that I would advocate electricity, where they resist the use of the knife and where we feel that we can subordinate our wishes to their dread of an operation, that we are justified in keeping them under close watch: but I honestly believe

that up to the tenth or twelfth week the fœtus can be destroyed and absorption produced. I only claim one case of my own in which I succeeded in producing absorption: the other two cases came from the physicians. One is a sure cure and the other has results such as have been spoken of tonight: undoubtedly she will have to have an operation later on.

REVIEW OF GYNÆCOLOGY.

PUERPERAL CONVULSIONS WITH UREMIA. By D. G. SIMMONS, M.D.

The subject to which I wish to direct attention in this paper, so far as we know to the contrary, dates back to the time when Eve enlivened the time for Adam, dressed in three fig leaves and adorned in nature's loveliness, or possibly shortly thereafter, when she or some of her daughters began to endure the pangs of maternity: for we may well believe that occasionally the women of all nations and all ages have had to contend with it.

Since the days of Galen it has been written and speculated on, and has become so hackneyed that I feel like apologizing for referring to it, unless I could advance some new ideas on it, or proclaim some new discovery with regard to it.

My purpose is to relate some representative cases which have occurred under my observation, deduce therefrom some general principles, and some practical rules for analogous cases, and to emphasize some features in the management of such cases at certain stages. These cases were selected from among a great number, because

they forcibly illustrate the expediency of the measures therein resorted to for relief.

First Case.—Mrs. G. was thirty-eight years old and mother of five living children. She was a large, robust woman, with a growing tendency to corpulency, and without any special incident in her previous pregnancies. During the seventh month of the pregnancy in question, she suffered with headache, which was sometimes extremely violent. During the eighth month the headache became almost distracting, and accompanied by nausea and frequent vomiting. The urine had become scant, with abundant albumen, and was about the color of lye. The bowels were at this time loose, sometimes amounting to a diarrhœa.

The treatment during these two months had reference to supplementing the impaired action of the kidneys by a vicarious action of the bowels, which was effected by the free use of a combination of rochelle salts and cream of tartar, the grand object being to temporize, and if possible, carry the case through to the full term of pregnancy.

About the second week of the eighth

month she developed convulsions, which were controlled for a time by the hypodermic use of morphia, the loss of eighteen ounces of blood, and the continuations of salines above alluded to. By the beginning of the ninth month the urine, which had remained loaded with albumen, had gradually decreased until it had almost become suppressed. All the adverse symptoms were aggravated, the headache especially having become insupportably violent, and the vomiting most distressing. From an odema of the feet at the sixth month, the swelling had developed into a general anasarca, the features having become bloated almost beyond recognition.

She was entirely unconscious. Convulsions were frequent, and only kept under control by large hypodermic injections of morphia. It was now deemed inexpedient to temporize longer, as it was evident she would not be able to go to the full term, and steps were taken to terminate the pregnancy. After thorough antiseptic precautions, a bougie and a sponge tent were introduced within the *os uteri*. Within a few hours labor pains were manifested by the uneasiness and tossing of the patient, and within ten hours the labor was terminated, the child with great difficulty having been rescued from asphyxiation.

The pressure having thus been removed from the kidneys, they promptly responded to the use of acetate of potassium with tr. digitalis, and within thirty-six hours not a trace of albumen was apparent, the convulsion had subsided, consciousness had been restored, and she then realized the fact that she couldn't recall a single event that had transpired within the past three weeks. I have noticed this in a greater or less degree, as a common feature after puerperal uremia.

Second Case.—Mrs. H., forty years of age, mother of ten living children.

Always *embonpoint*, she had within a few years previously become decidedly corpulent. She had scarcely known what sickness was. During the seventh month of this pregnancy she observed some swelling, not only of lower extremities, which alone is not of much importance, but also of the upper extremities and face, which always implies a uremic state of the blood, and is generally accompanied by an albuminous state of the urine, which was very abundant in this case.

She also, about this stage of pregnancy, developed an increasing tendency to headache, pains in side, stupor, nausea and loss of appetite—in a word, all those symptoms produced by eremic poisoning. At the conclusion of the eighth month these symptoms had increased greatly, and the condition resulted in convulsions and entire unconsciousness. Dr. Scott was called, and by morphia hypodermically administered, he controlled the paroxysms of spasm as long as she was profoundly narcotized, but she remained unconscious, with a constant tendency to relapse into convulsions.

I was then summoned, and after a careful examination we thought it expedient to excite labor, as the kidneys were acting very inadequately in consequence of the continued pressure to which the gravid uterus subjected them, and the urine was highly charged with albumen. Accordingly, steps very similar to those alluded to in the above cited case were resorted to, to excite labor pains, although the term of pregnancy had not been completed by one month. Labor pains were promptly excited, and within eight hours the child was born in a live and vigorous state.

Pending the completion of labor, occasionally a rolling of the eyes and an unusually vacant expression of countenance heralded the approach of another convulsion, but the prompt

hypodermic injection of a small dose of morphine would abort it.

Very shortly after the birth of the child the kidneys resumed their wonted activity, and as the blood became cleansed of its excess of urea, the clouded mind cleared up, the tendency towards convulsions subsided, and within a few days both mother and child were doing as well as usual.

Third Case.—Mrs. R., twenty-two years of age, stout to the point of corpulency, and primipara. I was called to this case at about the completion of the term of pregnancy, without having seen or known anything of the case prior to the call. I found her having frequent convulsions, entirely unconscious, enormously swollen all over, with urine very scant and highly albuminous. The os uteri was slowly dilating. It was ascertained that the action of the kidneys had been inadequate for several months, with a confined state of the bowels. She had been a great sufferer from headache and other pains. She was in labor about thirty-six hours, during which time it was with the greatest difficulty that the convulsions could be kept under control. The child was stillborn, and the mother survived its birth only about twenty-four hours, the kidneys failing to resume their function to any extent after labor was completed.

Case Fourth.—Mrs. F., age twenty-nine, a primipara. She was of about an average state of flesh prior to pregnancy, but during that term assimilation was wonderfully quickened, and the approach of the full term found her quite fleshy. About three weeks prior to the completion of the full term of pregnancy she was awakened about midnight with a most distressing headache, upon which Dr. W. K. Smith was summoned to her. About the time of his arrival she passed into violent convulsions. She

was considerably swollen all over, the face bloated and eyes puffy. For some weeks she had been passing profusely limpid colorless character of urine until a few days past, since which time it was highly colored and very scant. Upon analysis it showed a considerable quantity of albumen.

Shortly after Dr. Smith's arrival I was summoned. There was no evidence of uterine contractions. Seeing that the child was living and fully viable, we determined to terminate pregnancy by inducing premature labor. After thorough antiseptic precautions, labor pains were excited by the use of bougies and sponge tents. The convulsion tendencies were kept under control by the alternate use of extract of veratrum and morphia hypodermically administered.

About fifteen hours elapsed before labor pains were excited; then the bougies were removed and the decks cleared for action. At the end of seven hours the pains began to slacken, refusing to respond to quinine, which is my favorite oxytocic. As the fetal head had reached the floor of the pelvis, we deemed it wise to terminate labor by forceps delivery, which was accordingly done. The child was asphyxiated, but with a finger in the anus and a modified Sylvester method, he soon rounded to and declared his independence by a lusty yell.

The kidneys responded to the removal of the pressure promptly, and as the blood was gradually cleared of urea, the violent headache, stupor and nausea subsided, and within a few days both mother and child were doing nicely.

Just here I wish to call attention to the fact that abundant colorless urine indicates a state of things almost as bad as the total suppression of urine, as it is of very low specific gravity, and contains little or none of those substances which it is the pro-

vince of the kidneys to eliminate from the blood. The development of this character of urine in other than the pregnant state nearly always heralds the approach of neuralgia or rheumatism, whatever the underlying cause may be.

By scanning the above four cases it will be observed that all of them, and all others I ever saw save one (and she soon afterwards died of Bright's disease), were large, fleshy women, whose abdominal walls were thickened and their abdominal capacity correspondingly diminished, so that, as the child approached the completion of its intra-uterine term, the pressure on all the viscera tended to embarrass their functions and sometimes suspended them. This was more especially the case with the kidneys.

I conclude, therefore, that corpulent women are more subject to the condition than others; that mechanical pressure produced by the encroachment of the growing uterus upon the kidneys and ureters, thereby embarrassing their functions, was the cause of the albuminuria in all cases in which there was no previous nephritis, and where nephritis previously existed, the mechanical cause aggravated the kidney inflammation. I feel also justified in the conclusion that the longer this pressure lasts, and the more violent it is, the greater is the tendency to develop structural change in the kidneys where it did not previously exist, and to aggravate this change where it did not exist. Hence the importance, as I conceive, of terminating the pregnancy, where the condition is persistent and violent, at as early a date as is consistent with the best interests of both parent and offspring.

It is still a question *sub judice* whether the convulsions, which are such a frequent sequence of puerperal

albumenuria, is caused by the uremia which so constantly accompanies albumenuria, in greater or less degrees, or is produced by some other cause. I have never seen the convulsions without an abundant coincident albuminous state of urine, though I have seen albumen in the urine of puerperal women without convulsions. The invariable tendency, however, of albuminous urine in such persons is to generate uremia and convulsions, if the albumen is sufficiently abundant and persistent.

From the history I obtained of the case, I conclude she had been so long subjected to this disorganizing pressure on the kidneys that they had gradually become disqualified for performing their proper function of eliminating urea, uric acid and other impurities from the blood, and consequently the long continued uremia had so stupified and poisoned the brain and nervous system, that even when the pressure had been removed there was not sufficient vitality remaining to recuperate the disorganized kidneys, and death resulted from a suspension of their function.

Doubtless the same result would have followed with number one, two and four, if as soon as the foudroyant symptoms (by the way what the dickens is foudroyant symptoms? blessed if I know, but I believe it conveys the shade of meaning I wish in this connection. Risk it anyway, as it is a good fat substantial word, and of respectable proportions) had developed themselves sufficiently, pregnancy had not been terminated in time to save the lives of both mother and child: whereas in number three the lives of mother and child were both sacrificed to reckless negligence of the husband in not applying for medical advice as soon as swelling, headache, etc. developed themselves.

BOOK REVIEWS.

(All Exchanges and Books for Review should be sent to Dr. C. G. CUMSTON, 826 Beacon St., Boston.)

A TREATISE ON THE DISEASES OF INFANCY AND CHILDHOOD. By J. LEWIS SMITH, M. D., Clinical Professor of Diseases of Children in the Bellevue Hospital Medical College, New York. New (8th) edition, thoroughly revised and rewritten and much enlarged. Handsome octavo of 983 pages, with 273 illustrations and 4 full-page plates. Cloth, \$4.50; leather, \$5.50. Lea Brothers & Co., Publishers, New York and Philadelphia, 1896.

Prof. Smith has received the most unusual compliment implied in a demand for eight editions of his work. He has thus been enabled to keep it constantly in touch with the advance of its subject. In the present revision he has sought the assistance of Dr. Stephen Smith, equally eminent as a surgeon, to whose pen are due the sections on the surgical diseases of children, a new feature. The medical portion of the work is thoroughly revised, and in connection with these changes the five-fold increase in the number of illustrations and the addition of one hundred pages and several full-page plates will make the volume one to be obtained not only by those who possess its predecessors, but also by students, and those physicians who have not yet learned to depend upon its guidance.

That this edition will be appreciated to the same extent that the previous ones have been is needless to say, and we feel sure that the ninth will soon be called for.

THE DISEASES OF CHILDREN. By

HENRY ASHBY, M.D., F.R.C.P., and G. A. WRIGHT, B.A., M.B., F.R.C.S. Third edition, edited for American students by W. P. NORTHRUP, A. M., M.D. New York, 1896. Longmans, Green & Co., Publishers. Price \$5.00.

We welcome the third American edition of this most excellent work, which has been thoroughly revised, and some sections, more especially those on infant feeding, anæmia and chronic heart disease, have been almost entirely rewritten. Much has been added to the surgical portion of the book.

About fifty pages have been added, the formulary increased, while fourteen new wood cuts make the book more attractive and more complete.

We commend the book.

TEXT-BOOK UPON THE PATHOGENIC BACTERIA. By JOSEPH MCFARLAND, M.D., Demonstrator of Pathological Histology, Medical Department, University of Pennsylvania, etc. Philadelphia, 1896. W. B. Saunders, publisher. Price \$2.50 net.

This book is intended to give a concise account of the technical procedures necessary in the study of bacteriology and the life history of the important pathogenic bacteria, as well as a description of the pathological lesions produced by them.

The work is essentially medical, as it only treats of those organisms related to human pathology.

Illustrated beautifully, well written

and excellently printed are attractions which will certainly find for this very good manual a large number of readers, a fact that it most highly merits.

TWENTIETH CENTURY PRACTICE OF MEDICINE. Vol. VI., New York, 1896. Wm. Wood & Co., publishers.

The sixth volume of this fine work is devoted to the diseases of the respiratory organs, but the maladies to which the ear is subject find their place here, an abnormality that we do not quite understand in such a work.

The following is the list of sections, with their respective authors: Diseases of the Nose, by Prosser James; Diseases of the Accessory Sinuses of the Nose, by Jonathan Wright; Diseases of the Noso-Pharynx and Pharynx, by E. J. Moure; Diseases of the Ear, by Albert H. Buck; Diseases of the tonsils, by E. J. Moure; Diseases of the Larynx, by F. H. Bosworth; Diseases of the Trachea and Bronchial Tubes, by Sir Thomas Grainger Stuart and George Alexander Gibson; Diseases of the Lungs, by Winslow Anderson.

MANUAL OF MEDICAL JURISPRUDENCE AND TOXICOLOGY. By HENRY C. CHAPMAN, M.D., Professor of Medicine and Medical

Jurisprudence, Jefferson Medical College, etc. 2nd edition. Philadelphia, 1896. W. B. Saunders, publisher. Price \$1.50 net.

The second edition of this manual is in many respects good, but on the whole is rather too incomplete to be of any real value to the student.

SYPHILIS IN THE MIDDLE AGES AND IN MODERN TIMES. By DR. F. BURET, Paris, France. Translated from the French, with notes, by A. H. OHMANN-DUMESNIL, M.D., Professor of Dermatology and Syphilology in the Marion Sims College of Medicine; Consulting Dermatologist to the St. Louis City Hospital, to the St. Louis Female Hospital; Physician for Cutaneous Diseases to the Alexian Brothers' Hospital; Dermatologist to Pius Hospital, to the Rebekah Hospital, to the St. Louis Polyclinic and Emergency Hospital, etc., etc. Being Volumes II and III of "Syphilis To-day and Among the Ancients," complete in three volumes. 12mo, 300 pages. Extra cloth, \$1.50 net. Philadelphia, The F. A. Davis Co., publishers. 1914 and 1916 Cherry Street.

An interesting little volume, well compiled and well translated, and one that will be found most instructive.

ANNALS

—OF—

GYNÆCOLOGY AND PÆDIATRY.

DEPARTMENT OF PÆDIATRY.

ORIGINAL COMMUNICATIONS.

Dietetic Experiment at the Randall Island Hospital for Children,
New York.

J. J. COLLIE, M. D., HOUSE PHYSICIAN.

During my service at the Randall Island Hospital for Children, I often wished for some definite and ready method of increasing the weight of children rapidly and without interfering with whatever medical or surgical treatment they happened to be on at the time. With the consent of a member of the visiting staff, I tried a number of experiments in this direction during the summer and autumn of 1895, with various foods and under varying conditions. It was practically impossible, however, to secure a carefully selected diet suited to each case, so that I concluded to make a trial of maltine, with the belief that its diastase would promote the digestion of bread and other starchy foods, and with this property added to its inherent food

value, an increase of weight could be secured. After a number of experiments, the improvement in the general condition and appearance of those who were taking maltine regularly was so marked that they could be easily told from those who did not; but I concluded that a careful test showing the actual increase in weight would be interesting, so selected ten children, placing five of them on maltine three times a day with meals: they each received a teaspoonful, either in their milk, on bread or added to a cereal. The other five in the same ward did not get maltine, but with this exception, the diet of the two classes was the same.

At the end of the seven weeks the total gain in weight of the five children taking maltine was twelve

pounds and two ounces. Those not taking maltine, eight pounds, five ounces.

The ages of the children averaged about eighteen months, and none of them were robust. Anyone familiar with the great disadvantages labored under in hospitals in regard to diet, and other adverse circumstances, will realize that the increase in weight shows that marked benefit can be secured in administering the diastasic nutrient maltine. The favorable result of this experiment interested me in this preparation, and I subsequently used it extensively with children recovering from acute diseases, and it invariably produced better results as a reconstructive than anything I had heretofore resorted to. The increase in weight was not the only thing that was

marked, but the patients became stronger and healthier than the others and seemed to have more resistance to disease. In many cases of extreme debility attended with emaciation and feeble digestion, good results were also secured from its use.

These remarks refer to maltine plain, but I found maltine with coca wine even more beneficial in children suffering from gastro-enteritis; and in advanced cases of tuberculosis it is readily taken and easily assimilated, making it a most useful resource in cases attended with great debility. More recently I have been giving maltine with coca wine to adults run down from various causes, and have found it a valuable remedy.

185 Washington Ave., Brooklyn.
N. Y.

REVIEW OF PÆDIATRY.

HEREDITARY SYPHILIS IN INFANTS.

It is known that all new-born children lose weight after birth, and that toward the 10th day, sometimes later, they regain their initial weight. Starting from this time they gain 25 to 30 grammes per day.

If the child is tainted with syphilis he loses during the first four days after birth 100 grammes each day (sometimes the loss does not begin for about 10 days). In these conditions weight, instead of increasing, remains stationary. Therefore, when in a normally nursing child a rapid

emaciation occurs (without diseased conditions capable of explanation), the inference is that there is syphilitic taint, and mercury should be given by fractions of 1 gramme per day. The solution of Van Swieten, 20 drops per day in milk, is also advised, and the doses are to be gradually increased to 60 or 80 drops.—*La France Med.*

CEREBRO-SPINAL MENINGITIS IN AN INFANT.

A case of meningitis at the unusually early age of six days is reported

by Dr. T. M. Rotch, in the August number of the Archives of Pediatrics. The infant was healthy at birth and remained in perfect health for six days, when she began to have convulsions. The temperature rapidly rose, reaching 104.2 degrees F. The temperature subsided somewhat, but the convulsions were frequently repeated until they reached fifty in number. Death occurred on the eighth day of life.

The onset of the attack followed a period of extreme nervous excitement of the mother, who was nursing the infant. When first seen by the author, in consultation with Dr. W. L. Richardson, it seemed possible that the convulsions were of a reflex form, such as might follow from disturbance in the breast-milk. The absence of retraction of the head, opisthotonos, any abnormal symptoms connected with the eyes, and the perfect tranquility and apparently healthy condition of the infant in the intervals of the convulsions, made the supposition of the convulsions being reflex still more probable.

The post-mortem examination was made by Dr. W. F. Whitney, eighteen hours after death. The calvaria presented nothing abnormal. The inner surface of the dura mater was covered with opaque, yellowish patches, the lymph being especially marked over the base of the skull. The vessels of the pia mater were filled with an opaque, greenish-yellow, purulent exudation. This extended over the entire brain and into the spinal canal. Microscopic examination showed the presence of large micrococci, usually associated in pairs, two of which were sometimes united with a chain of four (pneumococcus). Other organs of the body were normal. The condition was, therefore, acute cerebro-spinal meningitis with general venous congestion. The

author reports the case to warn us that a most guarded prognosis should be given in all cases of infantile convulsions.

ANTISEPTIC TREATMENT OF THE NAVEL IN THE NEWLY-BORN.

Schliep (Therap. Monatshefte, June, 1895) advocates antiseptic treatment of the stump of the umbilical cord after childbirth, instead of the usual dirty treatment commonly adopted. He mentions Schroder, who insisted on strict asepsis during and after treatment of the cord by means of antiseptic baths and treatment of the stump with dermatol, which hastened the process of mummification. By this means Schroder showed that many sources of infection were avoided, especially contamination by dirty bath water. Schliep advocates this treatment, but substitutes for dermatol a 2 per cent. solution of silver nitrate, applied twice daily by means of a brush. He states that the day after birth the stump begins to become dry and leathery, on the second day it has shrunk to a fifth of its normal size, and on the fourth day the treatment is complete.

THE OPERATIVE TREATMENT OF WRY NECK.

Mikulicz (Centralblatt für Chirurgie, 1895), being dissatisfied with the results both of subcutaneous and open division of the sterno-mastoid in cases of wry neck, advocates almost the total removal of the contracted muscle, the posterior part of the upper extremity, where it is traversed by the spinal accessory nerve, being left. He has operated upon seventeen cases with success, the only bad results being the disfigurement of the neck caused by the

absence of the muscle. Examination of the extirpated muscle in these cases has convinced him that wry neck is the result of a chronic inflammatory condition (myositis fibrosa) involving the whole of the sterno-mastoid muscle. This condition he attributes in congenital cases to compression of the muscle during a long, difficult labor than to laceration. The so-called hæmatomata of the sterno-mastoid sometimes observed in infants is not due to effusion of blood, but to thickening and induration of the inflamed muscle.—*University Med. Mag.*

RATIONAL TREATMENT OF PERTUSSIS. By FRANCIS T. B. FEST, M. D.

With every disease its etiology shows us the way for its treatment. Therefore, it is necessary to recapitulate the etiology of every disease for which we wish to outline the therapeutics.

Pertussis, or whooping cough, is a contagious disease, which manifests itself in spasmodic cough. Although some bacteriologists have found it in the sputum bacilli, we are unable so far to determine their role, whether causing, accompanying or only accidental. It is a local disease of the larynx, acting upon the nerve supply, and causing spasms of this organ. The course of the disease shows three distinct phases—the catarrhal, paroxysmal and declining.

The first stage shows only symptoms of mild catarrh of the bronchi, nose or conjunctiva. Pathognostic for pertussis is only the excessive watery secretion from the affected regions. This phase lasts from two to seven weeks, with infants often a few days only.

The paroxysmal stage affirms the diagnosis by its characteristic

“whoops.” The expectoration is watery, sometimes bloody. In many cases vomiting follows the paroxysms by mechanical irritation. The vomiting in return can cause disorders of the digestive apparatus. The whoops at times occur as often as every half hour, and as thereby the cyanotic condition which accompanies the whoops occur too frequently, they lead to asphyxial convulsion and even death.

In the respiratory apparatus the irritation causes in many instances capillary bronchitis and catarrhal pneumonia. After duration up to ten weeks the paroxysms are less severe, show themselves more rarely and the disease goes over into the declining stage. At this time the sequela or secondary lesions mainly demand our attention.

As we have seen, the disease is a local one. Its primary effects only the larynx; all other symptoms are secondary. The circumstance forms the basis of our treatment. The disease is local—ergo, we treat it locally; it is of neurotic character—ergo, we give a drug that acts upon the nerves.

With contagious local diseases rational local treatment consists in destruction of the contagion by antiseptics—the most powerful is the most rational. Therefore, every local application of any antiseptic improves to a certain degree pertussis. If we cast a glance at the literature, nearly everything was tried—phenol, boracic acid, thymol, resorcin, naphthalin, creosote, benzol, bromoform, mercurials, etc., but they all more or less are of irritating action upon the surface they are brought in contact with, or if not irritating, their action is so mild that their therapeutic effect is as mild, too. The experience of the last few years proved the superiority of peroxide of hydrogen over all other

antiseptics, except when we have to handle metallic instruments, an exception which interferes not in pertussis.

In pertussis I used the peroxide with great success for local applications in this way: The child's head is leaned backward and held firmly, another person pulls out and depresses the tongue to bring the glottis into good view; then, by means of a bulb atomizer, consisting of glass and rubber only, I direct a spray of peroxide of hydrogen solution toward the larynx, and if possible, through the glottis. This is much facilitated if the child is old enough to pronounce the sound a.

I always prefer the 30-volume peroxide of hydrogen (hydrozone), and dilute it in the following manner: hydrozone, one part; distilled water, ten parts; glycerine, one and one-half parts.

If the parents are docile they can be instructed to repeat the application twice or thrice a day. If the physician has a chance to apply it himself, he does well to make the solution fresh every time. At all events, it should be made fresh every other day, on account of this mixture being unstable.

Of all drugs only one has a really aborting influence upon pertussis, the old reliable, often-abolished and always-restored belladonna. The only secret of its right administration is the circumstance that we have to give such doses to get the belladonna action, the flushes (Jacobi), otherwise the administration is without value.

A child of two years requires six drops of the tincture three times a day; with the age the dose has to be increased to the proportion of 1.00 as a maximum single dose for an adult (gtt. xxv).

The root, the extractum alcoholicum fluidum, can be given to infants

of six to eight months in doses of 0.01 t. i. d.; children of three to four years require of the same 0.3. Atropin may take the place of belladonna, beginning in a child of two years with 0.00065 t. i. d. and increase proportionately.

All complications must be abated in time, else our patient will be emaciated. If vomiting occurs at the paroxysms, give menthol. If there be gastritis and catarrh of the bowels, give calomel, bismuth or, still better, glycozone. Often we meet gastralgia; then I prescribe for a child over two years:

R	Belladonna, tinct.,	2.00.
	Mentholis,	2.50.
	Spir. frumenti,	10.00.
	Glycerin,	20.00.

M. D. S. Teaspoonful every two hours.

Glycozone administered in the proportion of two teaspoonfuls, diluted in a wineglassful of water, gave me the most gratifying results in acute cases.

Are the paroxysms severe, we can easily control the spasms by an application of cocaine to the larynx.

For the general treatment we shall advise fresh air, good nourishment, tonics and inhalations of ozone. With such treatment the disease can be cut off to a period of only a few weeks.

THE USE OF ACONITE IN DISEASES OF CHILDREN.

The fluctuations of disease are so frequent in children, the tissues and, above all, the nervous system of little ones are so sensitive, the modifications of type and treatment will always merit attentive study. Clinical manifestations differ appreciably in children and adults. Remedies producing a powerful effect upon the

nervous system must always be administered with caution to young subjects. To some of these drugs they are specially susceptible. The importance of correct diagnosis and the family affection which centres in juvenile patients are also reasons which incite us to study carefully both disease and therapeutics as relating to the young.

An esteemed French writer upon the maladies of childhood, M. Jules Comby, has lately contributed a number of interesting papers to *La Médecine Moderne* dealing with the therapeutical indications and contra-indications of a number of important remedies. In the issue of December 5, 1894, we find a contribution on the subject of aconite from the pen of the writer named. These papers of M. Comby are of interest, both on account of their subjects and the manner of their presentation. Without verbosity the author seeks to convey to the mind of the reader the leading facts which are the result of his own experience. As that experience has been large, the papers well deserve attentive perusal.

M. Comby indicates briefly the physiological effects of the drug, and alludes to the depressant influence which it exerts upon the nervous system. The prickling sensations, the numbness, and muscular inertia occur in children as in adults. Anæsthesia and paralysis of the limbs are followed by nausea, vomiting, prostration, etc. Diuresis also is excited by the drug. If aconite paralyzes particularly the sensory nerves, and is, above all, a sedative and analgesic remedy, it must possess accessory antipyretic, antiphlogistic, diuretic, and antispasmodic properties. In fact, it depresses the activity of all the great organic systems. Aconite is, therefore, regarded as indicated in all cases of excitation and overactivity

of those systems—as, for example, neuralgic pains, headaches, buzzing in the ears, hypertrophy of the heart with palpitations, spasmodic cough, high temperature, etc. Aconite has been praised as of value in rheumatism and gout; others have employed it in herpetic and syphilitic affections of the skin, in amaurosis, and amenorrhœa. Teissier, of Lyons, gives it in erysipelas. Trousseau and Pidoux recommended it highly in facial neuralgia. M. Comby has known it to be prescribed in peritonitis and puerperal septicæmia, etc.

In children aconite is employed with advantage in all cases characterized by a decided spasmodic element, as in asthma, the asthma-like attacks of bronchial adenopathy, pertussis and other spasmodic coughs, laryngismus stridulus, palpitations with or without hypertrophy of the heart, and in convulsions. In the catarrhal and spasmodic affections of the respiratory passages, J. Simon, who has made extensive use of aconite, praises its association with belladonna. In diseases of the heart, Blache, senior, in order to mitigate the effects of digitalis, is in the habit of associating it with aconite. It may be combined with colchicum in gouty and rheumatic manifestations, with opium in neuralgia, and quinine in fevers and malarial affections. On account of its sedative and depressant effect, it is contraindicated in the presence of actual or threatened prostration. If the respiration is embarrassed, the heart enfeebled; if the little patient, depressed and somnolent, makes but a feeble struggle against his illness, aconite should be avoided. In such conditions tonics and stimulants are needed. In capillary bronchitis, broncho pneumonia, valvular affections of the heart, pericarditis; in all conditions of debility, of collapse, occurring during grave

infectious maladies, diphtheria, typhoid fever, etc., M. Comby advises against the employment of aconite. He includes in the same list several disorders in which, as frequently manifested in sthenic type, we have frequently administered aconite with excellent result. Such are croupous pneumonia, scarlatina, and variola. Aconite is, in the opinion of M. Comby, particularly valuable in spasmodic and painful disorders of the respiratory passages among children.

As regards the mode of administration, the writer named insists upon the superiority and reliability of preparations made from the root of the wild plant. He employs the preparation which is known in France as the *alcoholature*, made by macerating for several (10) days 1 part of fresh roots in 1 part of 90-degree alcohol. Occasionally he makes use of a syrup of aconite, which consists of 1 part of the alcoholature in 10 parts of syrup. Some of the French writers regard the tincture of aconite as more energetic than the alcoholature, the former being made from the dried and, therefore, concentrated root, which, they believe, more than counterbalances the greater dilution in alcohol of the tincture. However this may be, the tincture is the alcoholic preparation universally employed in this country. Dr. Comby very properly condemns the use of aconite in children on account of its extreme activity, with consequent danger, and the difficulty of maintaining an effectual control over its administration.

Intoxication from aconite is extremely rare in children, from the fact that practitioners are, as a rule, very careful in its administration, prescribing it in doses by drops, and avoiding crystalized aconite.

The frequent administration of

broken doses is often a very effectual method of administering aconite. In small doses our author has never witnessed symptoms indicative of its physiological action. He teaches that, in order to obtain its characteristic effects, comparatively large doses are required. In whooping cough a combination of aconite and digitalis has been beneficially employed by H. Roger. In the same affection, J. Simon finds advantage from an association of aconite and belladonna.—*Editorial in Medical Bulletin.*

DIGESTION IN YOUNG CHILDREN.

The communication of Huebner on the feeding of young children gives a special interest to the chapter which Ballantyne devotes to his book, to the physiology of the digestive system in children.

He says: "Digestion in the child differs from that of the adult, so that the problem often becomes very difficult. If it were in possession of a complete knowledge of the chemical phenomena taking place in digestion in children, we would be in a better position to treat cases of disorder of this function.

Ballantyne studies successively digestion in the mouth, stomach and intestines.

Buccal digestion.—During the first six or seven months the food is hardly at all modified in the mouth. There being no teeth, there is consequently no mastication to speak of, and as the food usually consists of milk, the absence of teeth is immaterial.

The salivary secretions are almost absent in the first weeks; until the third month there is little salivary secretion, but from this time the buccal glands are active.

The saliva of the child, like that of the adult, has the peculiar action

on starch to an extent. During the first months there is not ptyaline sufficient to transform starch into dextrine and glucose, although the action continues in the stomach.

As the child grows the salivary secretions have an increased action, and after the eruption of the teeth the process is about the same as in the adult.

Stomach digestion.—The capacity of the stomach is a question of importance. During the first months it increases rapidly and thus more slowly. Frolovsky says the capacity at birth is about one ounce. If this is represented by the figure 1 the capacity will be 2 1-2 in the fourth week; 3 1-5 in the eighth week; 3 1-3 in the 12th week; 3 3-5 in the 20th week. Snitzkin says the capacity is in direct ratio of the weight of the child.

Hydrochloric and pepsin.—The former only appears about one-half hour after taking of food. In the absence of it the stomach contains lactic acid and other organic acids. When the child is taking milk alone this acid is furnished in large quantities, and its presence is due probably to a special ferment.

Reichstein has shown that in digestion in adults, a few minutes after taking milk, clots of caseine are found in the stomach with a certain quantity of parapectones and traces of lactic acid. Starting from this lactic acid increases and then HCL and peptones take its place, digesting the coagula of caseine and parapectones. When milk is given boiled the process is quickened, and this is also the case in presence of water. This shows the necessity of adding water to the food of infants. The result of these transformations is the production of chyle, which contains an acid liquid, fats and fatty acids not yet transformed.

In children nourished at the breast few bacteria are found, but in those fed artificially germs are numerous.

Hepatic secretion.—The large size of the liver in young children is a proof that it plays an important part in digestion. Its functions are but imperfectly known, however. It is probable that the bile acts in children in much the same way as in adults.

The pancreatic secretion contains three ferments—trypson, steapepsin and amyllopsine.

Intestinal digestion.—The secretions of the glands of Brunner and Luberkuhn, in addition to those of the liver and pancreatic, convert the chyme in chyle. Peptones, sugars and fats pass easily into the blood current, probably because the glandular tissue is so abundant. The mineral salts are not well absorbed, as is shown by the fact that the stools contain the greater part of the amount ingested. The nitrogenous elements, on the contrary, are so well absorbed that no traces of them exist in the stools.

Rectal absorption in the child.—No digestive process occurs in the rectum, but the absorption of what has escaped the upper portion of the intestines still goes on. Albumenoids and fats to an extent are absorbed, but of course the proportion as compared with the other parts of the tract is small.

Feces.—Defecation is frequent in infants. During the first week three or four stools a day are normal, and at the end of the second year there are usually two stools a day. After this age there is generally but one in the 24 hours; so that to decide whether there is diarrhoea or constipation it is requisite to recall to mind the normal number of stools at the given age. The appearance and decomposition of the stools vary also according to age. In the new-born

child during the first two or three days, the stools consist of the meconium with which the intestines are filled at birth. This is made up of the hepatic, pancreatic and intestinal secretions, and by-substances swallowed by the child, as amniotic liquor, hairs, sebaceous matter. It is always free from putrefaction products, as indol and phenol, and is devoid of bacteria. These, however, soon make an appearance after birth, but differ altogether from those bacteria resulting from the digestion of milk, and they disappear as soon as the digestion of milk commences. The stools of children fed on milk exclusively are of a pale yellow color, semi-liquid and of a stale odor. They contain from 84 to 86 per cent. of water. In health they contain neither tyrosine, indol, phenol or scatol, but they contain bacteria, principally the bacterium lactis and *B coli*. If other food than milk is taken other bacteria are present. The bacteriological diagnosis of stools is at present impracticable, owing to the diversity of opinion of different authors.

THE COMPLICATIONS OF VACCINATION.

Except in the thing which the anti-vaccinationist calls his "mind," the influence of vaccination in preventing or modifying small-pox is beyond a doubt; whether the present generation is wise in making use of it is a matter on which there may be more than one opinion. Looking upon the differences between small-pox now and small-pox one hundred years ago, and placing improvements in sanitation in their proper places, no one can deny that vaccination has deprived a loathsome disease of much of its horror. Personally, we look upon vaccination as the best means we have of fighting small-pox,

and as a means which we should consequently make use of until we can discover a better. The supporters of both sides of the argument would do well to read a very excellent and complete study of the complications of vaccination by Dr. Louis Frank, of Milwaukee, which appeared in the *Journal of Cutaneous and Genito-Urinary Diseases*, for April, 1895. The conclusions at which Dr. Frank arrives are as follows, and we have in some measure tabulated them for the sake of brevity and clearness: 1. That a study of ordinary anti-vaccinationist literature would lead one to think that leprosy, syphilis and paralysis are the only complications, whereas, as established by careful and unbiased observers, they occupy a most modest place in the list. 2. That the complications of vaccination are: (a) Those due to the virus itself, (b) those due to mixed inoculation, and (c) the sequelæ of vaccination. Under the first heading come nine different eruptions, including dermatitis, vaccina herpetica, erythema and urticaria; none of these are particularly serious. 3. Of the complications due to mixed inoculation, the most common is erysipelas, while the most serious and most rare are tuberculosis, leprosy and syphilis. That the anti-vaccinationists make most noise over these particular affections and consider them to be relatively frequent.

Of tuberculosis communicated by vaccination only three cases are on record, and these are of doubtful value. 5. With regard to leprosy, it is not to be denied that such inoculation may be possible, but it may be said that we have, at present, no clear and indisputable facts proving that leprosy has been spread by means of vaccination, but it is clearly established that it is effected transference from the vaccinee to he

vaccinifer, or from one vaccinee to another. Syphilis is never conveyed into the genus bovinum, consequently it cannot affect the lymph from that class of animal. 7. The complications of vaccination are due to the use of human lymph, or to the use of impure lymph, or to imperfect methods of vaccination. If pure animal lymph and vaccine be used with care, no complications need arise; certainly it is absolutely possible to prevent all serious ones.

ACUTE CORYZA IN NURSINGS.

It is not often that the acute rhinitis which nurslings occasionally suffer from, both in summer heat and winter cold, requires treatment; sometimes, however, it may, to some extent, prevent suckling, and remedial measures are required. Lewy, in such cases, advises the administration of terpin hydrate in doses of five centigrammes for children under one year, and double that amount for those above that age. For the prevention of eczema of the upper lip from the alkaline nasal mucus, vaseline, with which a little boric acid has been incorporated, should be used freely. When, as may happen, nasal obstruction from swelling of the nasal mucous membrane is so severe as to prevent nursing, it can be reduced either by swabbing with a five per cent. solution of cocaine, which requires constant attention, or by introducing into the nostrils cotton-wool cylinders dipped in one per cent. cocaine solution. In our own practice, however, we should not care to risk the use of cocaine with infants. In purulent rhinitis Lewy irrigates the nose with tepid water and insufflates with a powder containing one part of nitrate of silver to 20 of powdered talc or zinc stearate.—*Med. T. and H. G.*

INTERNAL USE OF COCAINE IN WHOOPING COUGH.

Wells and Carre (*Sem. Med.*, June 19) have treated some 300 cases of whooping cough by the internal administration of hydrochlorate of cocaine in doses varying from 4 milligrammes in infants of 8 months to 2 centigrammes in children of 5 or 6 years. These doses were given three times in the 24 hours. The treatment had a very favorable effect on the symptoms and course of the disease. Vomiting was checked, appetite returned, the attacks of cough diminished both in frequency and in intensity, sleep was less disturbed and the duration of illness was markedly lessened, the disease being cured, as a rule, in three weeks, sometimes in a fortnight. Cocaine is generally well borne by children. The only disagreeable effect occasionally noted is looseness of the bowels, which, as constipation is a frequent accompaniment of whooping cough, the authors think it an advantage rather than otherwise.

BILIARY CIRRHOSIS IN CHILDREN.

Gilbert and Fournier (*Rev. des Mal. de l'Enf.*, July, 1895) report seven cases of biliary cirrhosis in children, or commencing in childhood, and presenting all the symptoms observed in the adult, but with the addition, in many cases, of hypertrophy of the spleen, so conspicuous that in those cases in which the liver is not very much enlarged—and such enlargement is in children often not great—the true nature of the disorder may be easily mistaken. They believe this enlargement of the spleen in association with biliary cirrhosis to be peculiar to cases commencing in childhood. A further peculiarity of

the disease, as observed in children, is the frequency with which clubbing of the fingers may be observed. In some instances the ends of the femur and tibia were enlarged also. Evidence of the influence of the disease on the general nutrition is to be detected also in the retarded growth and the backward appearance of the sufferers.

A FATAL CASE OF UNCOMPLICATED CHICKEN-POX.

The *Australian Medical Journal* publishes an article by W. B. Nisbet, M.B., Ch.M., Ed., of Townsville, Queensland, in which he remarks that it appears to be a generally accepted fact that varicella is such a trivial disease that no treatment is required, and, as complications are extremely rare, no precautions are necessary to prevent their occurring. West writes, says the author, "The disease is one so void of danger that it hardly requires any treatment;" while Collie, in Quain's *Dictionary of Medicine*, says, "No physician has recorded a fatal case of chicken-pox." For this reason, says Mr. Nisbet, the following case is recorded, which might otherwise seem too trivial to be worthy of note: A healthy baby girl of eight months showed signs of eruption of chicken-pox on September 30, 1894. Four older children in the house also had it, and an epidemic of the disease was running through the town at the time, so the diagnosis was a matter of no difficulty. For the first three days the case progressed in the ordinary way, the rash being by no means copious and the constitutional disturbance unimportant. But on the fourth day a new crop of vesicles made their appearance, and were so numerous that by the sixth day every part of the child's body was covered, even to the soles of the feet and the

palms of the hands. The eruption showed no tendency to become confluent, except over the back, which was constantly rubbed by the restless movements of the child. On the seventh day numerous spots appeared on the tongue, on the hard and soft palate, and on the inside of the cheeks; these changed to irritable ulcers on the ninth day, causing great distress, and on the morning of the tenth day the child died, without any other complication making its appearance. The temperature remained at or about 102° F. during the illness, only once on the evening of the fifth day, reaching 103°. It fell to 98.8° on the ninth day and remained normal up to the time of death.

Mr. Nisbet thinks that death was owing to the immense area of skin involved, in the same way as a very extensive burn causes death from shock in a child. The exhaustion evidently was so great that at the crisis of the disease, when the temperature fell to normal, no amount of artificial stimulation could avert the fatal issue.—*New York Medical Journal*.

TREATMENT OF DYSENTERY IN CHILDREN.

Local treatment is more satisfactory and certainly more practical and scientific than all other methods for the relief of dysentery in children. The colon tube having been thoroughly oiled (preferably with vaseline) should be gently introduced from eighteen to twenty inches into the bowel. Its introduction is made more easy by injecting water so as to distend the bowel just as the tube is passing into the sigmoid flexure. Once the tube is properly adjusted, a solution of mercuric chloride (1 to 10,000) should be thrown into the

bowel by means of a fountain syringe. Much of this will escape outside of the tube.

This should be followed by the injection of a saturated solution of boric acid. With each solution at least two quarts of water should be used. Very little good is accomplished unless all irritating substances are removed from the lower bowel. While the mercury is used for its antiseptic effect, it should be used with caution lest absorption take place and mercurial poisoning result. The second irrigation, however, insures against such an occurrence. The boric acid solution may be used with impunity.

After the irrigation is completed, withdraw the nozzle of the syringe, leaving the tube in situ until the bowel has discharged all fluids which have not already escaped around the tube during the operation.

The next step is to apply our so-called local remedies. For this purpose we possess nothing better than subnitrate of bismuth and tannic acid. In these we get antiseptic and astringent properties. Two drachms of the former and a half drachm of the latter may be suspended in warm water and injected by means of a hard rubber syringe. A better vehicle than water, I think, is oil of sweet almonds. While this solution is being injected, the tube should be slowly and gently withdrawn, that the mixture may be distributed over as large an area of the diseased surface as possible.

This process of irrigation or local treatment should be repeated once every twenty-four hours, or even oftener, if not followed by sufficient intervals of rest and diminished frequency of stools.

When ulcers are located near the anus, intense discomfort is occasioned by the introduction of the tube. The distress may be overcome and

the operation facilitated by the application of a 4 per cent. solution of cocaine to the rectal surface.

If there is great tenesmus during the intervals between the colon irrigations, much relief may be obtained by the use of rectal injections composed of a solution of chloride of sodium or boric acid, and followed by an anodyne suppository. Often the suppository is rejected before it has had time to dissolve. As a substitute, therefore, a mixture containing bismuth, tannin and opium may be injected into the rectum.

The technique of intestinal irrigation is by no means free from perplexities, and the physician should either oversee the operation himself or entrust it to a competent and experienced nurse.—*Dr. James H. Taylor in Indiana Medical Journal.*

TREATMENT OF ACUTE "INFANTILE" ENTERITIS.

Graucher says the clinical and therapeutic indications depend on the diet of the child at the breast, on the bottle or during weaning. All errors in diet must be remedied, as they are the frequent cause of enteritis.

If enteritis exists, intestinal lavage with a quart of boiled water is practised. The child is turned from side to side to thoroughly wash the bowels. For fetid diarrhœa—Injection of 5 egms. of calomel, and also by the mouth one drop of laudanum each hour. Vomiting is combated by stomach lavage. Watery diet of egg albumen—No food till diarrhœa is stopped; where stimulants are required, champagne. In convalescence an absolute milk diet is given for the first day, with boiled or sterilized milk, in tablespoonfuls every hour. The quantity is increased every day until the normal quantity per day is

taken. After this regular diet may be substituted.—*B. de Therap.*

PAINFUL TEMPORARY PARALYSIS IN CHILDREN.

Brunon (*Presse Med.*, June 29, 1895) discusses painful temporary paralysis occurring in young children. Out of 22 cases 2 had paralysis of the lower extremities, all others having the arm only involved. Out of 14 all but one were under 5 years old. In all there was an absolutely sudden onset, sometimes following the slightest traumatism; often no cause was observed. The paralysis is complete from the onset; amelioration is gradual. All passive movements are retained, all active movements are abolished, the arm hanging inert by the side. The child screams when the slightest examination is attempted. No anatomical lesion is found except occasional creaking of the joints. Recovery takes place in from 24 hours to a week. Most authors take the view that there are in such cases anatomical lesions, such as subluxation, stretching or twisting of ligaments. Brunon believes with Classaignac that in the cases in question any idea of fracture, dislocation, or tearing of ligaments may be dismissed, as no deformity, ecchymosis or interrupted movements of joints can be found. A differential diagnosis is needed between this and the form of paralysis due to partial dislocation of the head of the radius, a pathognomonic sign of the latter being the impossibility of supination. In 17 cases of this nature 2 only held the arm hanging straight. In the 22 cases under consideration all hung limply by the side and could be freely flexed, pronated or supinated. The initial lesion may be an injury to ligaments, but examination fails to localize the

injury. Pain is general from shoulder to finger tips. The condition appears to be due to a reflex inhibitory action, of which other examples are numerous, and which affords a rational explanation of the paralysis. Mechanical, emotional or psychical stimuli are known to produce such conditions. An intellectual factor, the memory of the initial pain, explains the persistent crying of the child, the fear of being touched. There is no pain when the child is not handled. Much depends on the influence of suggestion made by those in charge of the child. In one case in which Brunon was able to make a diagnosis before seeing the patient, he was able to manipulate the arm freely from behind a curtain, while on his attempting to do so openly the child at once began to scream. An analogous case is cited of a child who was not allowed to see his crushed finger for three weeks until the new nail began to grow. At the sight of it he cried as if in pain, and kept the finger extended, not attempting to use the hand for two days. The spontaneous cure of these cases as memory fades seems to corroborate the view advanced.

THE TREATMENT OF STRIDULOUS LARYNGITIS IN CHILDREN.

The *Journal des Praticiens* contains an article on this subject by M. Huchard, who remarks that the opinion that stridulous laryngitis in children is always a benign disease should not be credited too much. Trousseau cited cases in which tracheotomy has to be performed, and M. Huchard himself has observed the case of a child in whom cyanosis and asphyxia were so intense that tracheotomy had to be done. In other cases coming under his observation surgical intervention had not been resorted to,

although the intensity of the symptoms had been remarkable, the laryngeal spasms occurring nearly without remission for three consecutive days and nights; the voice had been nearly inaudible, and dyspnœa and cyanosis had been considerable. M. Cadet de Gassicourt has also reported similar cases. Finally, in a recent thesis, M. Touchard has made a *résumé* of some interesting facts and divided them as follows: 1. Cases in which tracheotomy has been performed, with recovery. 2. Cases in which death had resulted because tracheotomy had not been performed. 3. Very serious cases in which surgical intervention had not been necessary. 4. Benign cases where *tirage* had existed, but with less intensity of the symptoms.

M. Huchard does not discuss the question of whether or not this affection is the result of transitory tumefactions of the glottic mucous membrane, if it is due to mechanical stenosis caused by the accumulation of mucus near the glottis, or if this laryngitis is first localized in the sub-glottic portion of the larynx. It is known, he says, that stridulous laryngitis is composed of two elements, inflammation and spasm of the larynx, and the danger in these cases is the spasm and not the inflammation, which may be slight or intense without increasing the gravity of the case. Before surgical intervention is resorted to, however, early medical treatment should be instituted. M. Huchard does not hesitate to prescribe sixty or even seventy-five grains of potassium bromide a day for a child four years and a half old, given in large doses; it is important, however, that these doses should be given in the beginning, without fear of toxic accidents, in order to insure prompt and sure sedation of the glottic reflexes. This treatment must be con-

tinued for from five to eight days at the least, for clinical experience has shown that the attacks of false croup may be repeated for several nights. Such is the necessary medical treatment of stridulous laryngitis, whether benign or serious. With regard to surgical intervention, one must resort to the last extremity when all medical means have been exhausted, and when there is danger of asphyxia. The two methods of surgical treatment are tracheotomy and intubation of the larynx.

It must not be forgotten, says M. Huchard, that during measles very serious forms of acute laryngitis, which simulate croup, may be observed at three periods: in the beginning, when the eruption appears, and during convalescence.

SCORBUTUS IN YOUNG CHILDREN.

Drs. Northrup and Crandal (*Hospitals-Tidende*) have made an extensive study of this disease, which was formerly held to be very rare. It is easily mistaken for rheumatism, purpura, ulcerative stomatitis, rachitis, infantile paralysis, sarcoma of the knee or simple osteitis. An early diagnosis is important, as, if not treated properly the result may be fatal, but with appropriate treatment a cure is rapid and certain. The chief and characteristic symptoms are: Intense pain and tenderness of the lower extremities, which are seemingly completely paralyzed, which paralysis, however, disappears with the other symptoms. A quite considerable swelling appears, especially around the diaphyses; the overlying skin is tense and glistening, often reddened or bluish, of a normal temperature, and not pitting on pressure. The upper extremities may also be affected. The gums are generally bluish-red, spongy, ulcerated

or bleeding. Subcutaneous hæmorrhages are relatively infrequent, but hæmorrhages from various mucous membranes may be observed. Fever and pronounced anæmia are also symptoms which are often remarked. Treatment consists in giving proper food, which indication is best filled by fresh cow's milk. It is best given Pasteurised; if it is to be sterilized, the steaming should not be continued longer than ten minutes. It is best administered undiluted as far as the child's age will permit, though if this be necessary well water is the most appropriate diluent. This diet alone will cure, yet it is advisable to add expressed beef juice, or lemon, or orange juice, which children take very readily. If the digestion requires it, tonics may be employed, and if there be associated rickets then phosphorus will be of service, but all of these measures are of subordinate importance.—*Lancet Clinic*.

BIPOLAR OSEOMYELITIS OF THE TIBIA.

M. Cartillet (contribution Coc. Des. Scien. Med., Lyon, Feb., 1895; *Annales D'Orthop.*, March, 1895) has presented the details of a highly interesting and unusual case of central suppurative inflammation of the tibia in a boy of sixteen years of age.

His trouble was of about three months duration. Cartillet, having diagnosed the case, decided that it undoubtedly was one of bipolar suppurative diseases, commenced by tapping the superior epiphyse of the tibia, which was filled with pus; then he went down and trephined the inferior head at the ankle, after which he carried an incision through all the tissues on the inner aspect of the shaft from one opening to the other. Now the entire medullary cavity was opened, dead sequestra

and inspissated pus cleared away. After this the hollow cavity was closed with sutures, though the ends were left open for drainage.

Recovery was rapid. The constitutional disturbances immediately subsided, appetite returned and his full strength was regained.

TREATMENT OF NOCTURNAL INCONTINENCE OF URINE IN CHILDREN.

Cheron (*L'Union Medicale*, April 6, 1895) divides the treatment into—

(1) Mechanical—This is usually considered useless and brutal, but the meatus may be occluded by collodion at bedtime, which can be removed in the morning or an elastic bag may be introduced into the rectum or vagina (?). Tienhovs considered incontinence due to insufficiency of the vesical sphincter; he lifts the foot of the bed at night, and thus secures good results in many cases.

(2) Hygienic Treatment.—The amount of liquid should be limited, and none taken with the evening meal. Cold perineal douches should also be given. The child may be wakened once or twice during the night. The sphincter may be educated by retaining the urine as long as possible in the day.

(3) Moral Treatment.—The child should not be punished. The hypnotic suggestion has been tried in a number of cases, with excellent effect.

(4) Medical Treatment.—Belladonna and atrophine can be used in such a way as to get their full physiological effect. Strychnine in full doses can also be given with excellent effect. Antipyrin, thirty grains, may be given in the course of ten days. Chloral and bromides may be given where there is a sensibility of the mucous membrane of the bladder.

(5) Electrical Treatment.—Either the constant or faradic current may be used, and must be applied directly to the sphincter. Massage of the sphincter directly by introduction of one finger into the rectum may be practiced. Several other methods which seem to the abstractor would be rather harmful, morally, than beneficial.

OPERATIVE REMOVAL OF A TUMOR FROM THE NECK OF A NEW-BORN INFANT.

An infant was brought in with severe dyspnea and cyanosis, the cause of which proved to be a large tumor which was situated on the anterior surface of the neck and which as a vast struma interfered with the air passages. The swelling, which was larger than a hen's egg, appeared hard and firm, rough and nodular, and extended from the chin even under the sternum. It was covered with integument (which was movable) fascio. and the superficial muscles of the neck, and embraced the hyoid, larynx and trachea on the anterior surface. On account of the poor prognosis that would attend a simple tracheotomy in so young a child, and because this operation could hardly be accomplished alone from the extent of the tumor, the

whole mass was removed without anæsthesia, yet not without considerable hæmorrhage. A part of the thyroid was left. After the operation the respiration was at once free and the child cried aloud. The course of the wound was favorable. On section the tumor was shown to be solid with many small pin-head to pea-sized cysts. Under the microscope there were found in the midst of a connective tissue, vascular and rich in nuclei, solid and hollow epithelial plugs and cysts lined with cylindrical epithelium. The presence of undoubted cartilage was striking. The tumor was regarded as congenital struma. Virchow in the discussion pronounced the tumor a teratoma.—*Centralblatt für Gynækologie*.

TO DISGUISE THE TASTE OF COD LIVER OIL.

Four hundred grammes of oil are mixed with 20 of freshly roasted and ground coffee and 10 of animal charcoal. The whole is kept in a water bath at 140 degrees F. for fifteen minutes in a stoppered flask. It is shaken occasionally for two or three days and then filtered through paper. The oil is limpid and light colored, and tastes and smells strongly of coffee.—*Times and Reg., Phila.*, 1895, xxix, 232.

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ORIGINAL COMMUNICATIONS.

Obstetrical Complications.

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In July, 1894, I was called to attend Mrs. W., where her first child was born. The labor was natural, the child strong and fully developed, and convalescence was satisfactory in all ways except nursing the child. The mother was a strong, well developed woman, but had very short nipples. There was great difficulty in getting the child to grasp them, and nursing was consequently a great toil and effort to the mother and very limited success to the little one. Although plenty assistance was rendered and every effort used to make nursing a success, it resulted in failure. The mother made milk rapidly, the nipples retracted into the engorged breasts, and the ends became denuded from the friction of the child's tongue and gums in the efforts to grasp them.

In the third week she and her family became tired of the apparently hopeless effort at successful and comfortable lactation. Against my advice, the sore nipples, cross child, disturbed sleep, and wearied family, decided her in favor of weaning, especially when her friends assured her that a bottle-fed child was as good as a nursed one. The mother came to me shortly after weaning, bemoaning the increased crossness and restlessness of the baby, and the continually disturbed condition of its digestive organs. This derangement was partly, but only temporarily, controlled, the digestive disturbance returning at irregular intervals until the child was a year old. In this case, through ignorance and fitfulness, hand feeding was poorly done, and the mother was

consequently wild with despair, from the crying of the child, the increased labor, and resulting loss of sleep.

Eight months after her first labor, she again became pregnant, and came to me in desperation to know if she must go through all this agony again. Being a rather positive woman, she objected very decidedly to such matrimonial success, and said she would rather die than endure again all she had with the first child. I encouraged her as best I could, and instructed her to stretch the nipples daily to their fullest comfortable length, also to bathe them well with alum water, using considerable friction to strengthen the skin. She did this honestly and faithfully, and when the second child was born she applied it to the nipples early and successfully. When I asked her if the baby could take the nipple, she replied, "Yes, and that is all it will get, too." No trouble was experienced by this child in grasping the now elongated nipple, and no soreness of the skin resulted from the nursing. I have another like case under preparatory treatment for second labor now, where the first child, unable to nurse the short nipples, was necessarily weaned, and its life saved by a wet nurse, when repeated and varied forms of feeding had proved failures. These cases illustrate in primipara the great necessity of examining the nipples, and if necessary of preparing them for nursing. Many women suffer torture for weeks through abraded nipples, and often consequent mammary abscesses, loss of one breast or

even both occasionally, who would be spared this torture and loss if careful directions were given primipara always about caring for the nipples prior to labor. Many children would also be spared from imperfect nutrition, through unsuitable milk supply, or even avoid enforced weaning, if this necessary precaution were taken three months before labor.

Mrs. R., the mother of four children, while at her summer home in 1894, was pregnant with her fifth child. Feeling not as well as usual, she took little exercise, sat around on her veranda most of the day time, and drove always when visiting her neighbors. When she returned home to the city in October she looked pale and washed out, not like her usual vigorous and healthy self even in previous pregnancies. She continued in this condition, taking little exercise and feeling poorly, till her labor occurred in January, 1895. Nothing unusual or difficult varied her usually natural labor, except it was longer than usual, but required no instrumental aid. She made a good convalescence until able to rise from bed in the third week. Unfortunately her nurse then left her one day for a few hours, to attend to some business of her own, and remained too long absent. During this time Mrs. R. tried to pacify the restless baby by trotting it on her knee. This unusual exercise of the muscles of the leg was followed by a swelling and tenderness of the calf, and she was compelled to return to bed, and remain there for three weeks while this swelling and tenderness

was subsiding. Elevation and heat relieved the pain, and the soreness and swelling did not reach above the knee.

The lochial discharge was not changed at any time, and the milk secretion, though reduced, was sufficient for the baby. She nursed the baby through till a year old, but required some artificial feeding to assist her. Her nursing was not as successful as with the previous children. At no time could any soreness be traced along the veins of the thigh. She now enjoys her usual vigorous health, and only very slight swelling ever shows in the leg, with no pain at any time.

Mrs. C., aged thirty-eight, the mother of three children, thin and delicate always, became pregnant again and took little exercise. She remained mostly at home and largely in bed, feeding very erratically but largely of acidulated foods, taking very little nitrogenous diet. She was a chronic sufferer from leucorrhœa, which continued through this pregnancy. She had always suffered from uterine falling sensations after taking exercise, even when not pregnant. No disturbance arose during this pregnancy and her labor came on naturally in April, 1895. Its progress was slow from the first and became powerless when the os was fairly dilated. Finding no progress being made with these feeble pains, I applied the forceps after administering chloroform and delivered her of a fully developed female child, using very little traction or force.

The convalescence was natural and unimpeded till the third week. Occasionally the lochia was foul for a few hours, but douching always relieved it. No tenderness, pain or irritation in the vagina or uterus was present at any time other than natural. The patient took nourishment in her usual erratic manner, had a limited amount of milk as in former labors, and rested well till pain and soreness in the right thigh disturbed her. This disturbance was located in the femoral vein, causing acute soreness with great swelling. Moderate tenderness of the surrounding tissues gradually extended downward till the whole limb was involved, causing great pain on motion or pressure. Elevation and warm applications gradually controlled this, and she was able in the fifth week to move the limb with some comfort. As the right leg improved, the same train of symptoms showed in the left thigh and went through the same progress downward, with swelling, tenderness and pain on motion. During the acute periods morphia was required to ease the pain and procure sleep. Under the same treatment this leg was gradually relieved in about two weeks of all severe pain. During all the first month after labor there were occasional days when the lochia became foul, but no tenderness or irritation was at any time present. Her usual leucorrhœal discharge followed. I forced the nourishment freely, and the patient became fleshy and looked better two months after confinement than I had ever seen her

before. She was contented in bed, and as I had secured a wet nurse for the baby, she had no mental cares or physical drains on her vitality except her leucorrhœa. She made a good recovery, though a slow one, and suffers little trouble from her limbs, except weakness in walking far.

The progress of the irritation was downwards in both limbs, and the inflamed veins could be distinctly felt and easily followed before much swelling supervened, as the patient was very thin. The veins were always the most tender part, and the patient was always particular that little pressure should be applied to them.

The abnormally poor health in these two patients seemed to be the strong predisposing cause of their troubles. The second patient had made no effort to use her limbs before the phlegmasia appeared. In neither case was there any glandular involvement perceptible, and while the pains and soreness at first strongly resembled a rheumatic affection, their onward progress and symptoms completely removed all doubt on this point. Neither patient shows any rheumatism since.

Nearly the same uncertainty exists regarding the pathogenesis of phlegmasia that has always been present. Formerly it was looked on as a milk metastasis, as a lymphatic disease, a rheumatic or a renal manifestation. The most prevalent belief is that this is a phlebitis of a peculiar kind, at times, if not always, due to a thrombus. Virchow advances the belief that the

thrombus causes the phlebitis. I have had cases where phlegmasia follows typhoid fever, and these cases are not infrequent. Villard, of Marseilles, reports a case of double phlegmasia in chlorosis. He found micrococci in the blood, and to these ascribes the thrombosis. Didier reports a case also in a chlorotic patient where the trouble was traceable to suppuration in a toe from paring a corn. Haushalter reports one case where the thrombosis was due to the typhoid bacilli. The patient died and a fibrinous clot was found in the left crural vein. Bacteriological study showed the typhoid bacilli in the clot, the walls of the vein, the liver and the spleen.

The amount of literature we find on this subject is very limited indeed. All phlegmasias occurring in patients other than obstetrical ones seem to be placed in a very debilitated foundation of health. Either the patients have been greatly reduced by a sudden sickness or are the subjects of continuously poor health. They are thus little protected by the number or character of their own leucocytes, and thus become an easy prey to pathological bacillar toxins of different kinds. Both of my patients were decidedly in a similar condition of depraved health. One of them, the more vigorous, had been from childhood a victim of Pica. She lives in a stone house, and will with a hammer crack the mortar from between the stones in order to eat it. Prior to this pregnancy, and now again since it, she has enjoyed superb

health, but certainly during that pregnancy she was much below her usual vigorous self. The other patient has always been anemic and below the usual standard of vigor and energy.

In May, 1894, I was called in consultation to see Mrs. D., aged twenty-six, in her second labor. She was a fleshy, dark-complexioned woman, unconscious, and had been in labor sixteen hours. Her pains were feeble and slow, and she had had four convulsive seizures at intervals of about three hours. Chloroform and bromides had been used to control them, but with poor success, and the patient was not progressing in her labor, as the os was then not an inch in size. Her limbs were greatly swollen and had been so for the last three months. Her pains were slow, but caused restlessness and a strong congestion of the face, which made a convulsive seizure appear imminent with each pain. By inserting a catheter well up in the uterus, leaving only the end in the vagina, and bleeding the patient very freely till the pulse was soft and flat, good labor pains were soon established and the child, still-born, delivered without further assistance in a few hours. There was no return of the eclampsia after the bleeding, and the patient's consciousness returned next day. She made a perfect recovery.

In October, 1895, the husband of this patient called on me stating that his wife was again pregnant and seven months advanced. As her head had been suffering from fulness and dizzi-

ness and her limbs were greatly swollen, as also her face somewhat, she was becoming alarmed and desired to see me. I found limited urinary secretion with some albumen in it, and the confusion of the head quite marked. By acting freely in the bowels with salines, the kidneys were relieved and a full urinary secretion was soon obtained. This reduced the œdema greatly and the head symptoms soon disappeared. Continued saline laxatives enabled her to proceed comfortably to her full term, only a diminished œdema remaining in the limbs. When labor commenced I was called, but the pains were very slight and no unfavorable symptoms were present. As the day advanced and the pains increased, she became more uneasy, and during a pain had a convulsive seizure. I reached her bedside soon after, and immediately bled her freely. Her labor progressed satisfactorily, and a vigorous full-term child was born in seven hours without any instrumental assistance or any more convulsive seizures. It was interesting to note during her pains, even after the free bleeding, how her face became suffused and turgid with blood, and how maniacally she acted to all around her. The effect of the uterine contraction forcing its blood contents into the general circulation, and thus causing cerebral pressure and irritation and consequent liability to convulsion, was very marked in this patient. Right at this point comes in the great uncertainty and consequent difference of opinion among physi-

cians as to the real cause of convulsions in many or perhaps all of these cases.

The return of consciousness after labor was over, and the new baby was dressed and brought to her, was very pretty indeed. The struggle of returning sense through awakened maternal interest in the new baby, as evidenced by the simple or foolish smiles on first seeing the little one, was a strong contrast to the manacled and fierce cries and struggles during uterine contractions prior to its birth. It required strong effort to break through the stupor and fog which beclouded her mental faculties. The visible effort required to recognise and realize the new baby showed the damage caused during even one convulsive seizure, and simply illustrated the necessity of losing no time in relieving this strong circulatory engorgement caused during uterine contraction in plethoric patients. The presence of convulsions in two successive labors would indicate either an abnormally sensitive brain, an insufficient urinary secretion, or both. Certainly there existed partial impermiability in the kidneys as evidenced by the albuminous urine, and diminished secretion also. Of cerebral irritation no evidence existed except during these two gestations, and none appears since the last labor, as I have had several opportunities of talking to her on other forms of sickness in the family, and could easily detect it, if present. The prompt response to treatment and relief to all cerebral symptoms and

œdema of the face, which we obtained in the last two months of this pregnancy, would not indicate that the amount of kidney tissue damaged was great. Neither would the present total absence of œdema in all parts, with all other organs healthy, indicate great glomerular involvement. I have examined the urine three months after labor and find it still carries considerable albumen, and a specific gravity of 1028, though she shows no other pathological symptoms, and has a full secretion of milk.

Great diversity of opinion exists as to the cause of puerperal eclampsia and consequently an equal diversity in the treatment. Several physicians have found a special bacillus with swollen ends in the blood of eclamptic patients. These bacilli inoculated into animals cause symptoms similar to eclampsia. Some French physicians take the view that this bacillus is the cause of this trouble, through a general infection of the body, causing pathological conditions or a non-infectious toxamia. Many other physicians ascribe the susceptibility to kidney or liver temporary or permanent lesions, but there seems to be a strong tendency among many writers to look upon the patient as in a toxamic condition, and Vinay claims this may be present with any condition of the kidney. The old theory of Lover and Brown, that this eclamptic condition is accompanied by or due to an albuminuria of a kidney origin, seems not to be supported so vigorously as formerly. Except the experiments of Rapin and Monier I do not find any

literature showing by experimental injections in animals that the toxins of this bacillus have the power to produce these seizures. Vinay claims that almost any unusual or infrequent kind of patient or labor can be a predisposing cause for eclampsia, and lesions of the kidney, liver, compression of the ureters and microbial agents are exciting causes. He ascribes the pathogeny to internal intoxication with sufficiency or insufficiency of the emunctories, not defining the intoxication.

From the fact that writers for many years back continue to differ so largely in their explanation of the predisposing and exciting causes in eclampsia, it is evident that no clear or distinct causes can be assigned that are applicable or explanatory of even a majority of these cases. As all ages and kinds of patients, dozens of diverse conditions, pathological and otherwise, and innumerable obstetrical complications are by so many able writers assigned as the cause of these seizures, it is evident that many conditions can contribute to an attack, if they cannot actually be the sole cause of it.

I find that in all the writings of recent years there is a strong tendency to ascribe the eclampsic pathogeny to microbial infection or toxæmia. While this seems likely as a solution in many cases, particularly those with febrile symptoms, yet in the patient, Mrs. D. above referred to, I failed to realize or see clinically any foundation for such microbial analysis. The head symptoms and

urinary insufficiency, with light specific gravity, 1014, rather impressed me with the disposition to so-called uremic poisoning, or, more properly, with poisoning from accumulation in the body of the toxic elements which should and would be eliminated by the kidneys if in a healthy condition. We know that disassimilation, alimementation, biliary secretion and fermentative putrefaction in the alimentary canal, such as we commonly have in excess in most pathological conditions, all combine in producing a large amount of toxic material, organic and mineral, which is taken up and conveyed by the blood current to the kidneys for elimination. We know also that this always keeps the blood in a toxic condition, varying with the activity of these four sources of intoxication on the one hand, and the active secreting and eliminating power of the kidneys on the other hand. We also know that all these sources of intoxication are more prolific in the pathological condition of the pregnant woman with imperfect permeability of the kidneys than in a healthy patient. We also know that the gradual increase or accumulation of these toxic organic and mineral constituents in the blood current, through imperfect kidney elimination will produce all the fullness, dullness, and pain in the head, lethargy, loss of memory, sleepiness and heaviness of which this patient complained. We know still further that a greater increase of these toxic elements will in one patient produce coma and in another convulsions. Of these things

we have proofs by experimental venous injections of urinary solids into animals, the form of seizure and death being in accordance with the excess of the different urinary elements in the injection.

In this patient the clinical indications pointed to an excess of potash in the blood. This would follow from the breaking down of cell walls through œdema, from pathological disassimilation, and imperfect alimention, all of these being fertile sources for this element. With the increased urinary secretion under treatment, I failed to obtain a sufficient diminution of these toxic elements in the blood to relieve the head symptoms permanently, as the œdema in the limbs and albumin in the urine continued, though to a lesser degree. Sufficient remained to continue the cerebral irritability, and was enough, with the increased amount received in extra blood pressure of uterine contractions, to cause a convulsion. Bleeding the patient not only relieved the cerebral pressure, but also eliminated a considerable amount of the toxic material which the blood carried. Had the kidneys not been pathological, so that I could have established perfect elimination, even though some œdema remained in the limbs, the patient would most likely have passed through her labor without eclampsic seizure, as we find so many patients do with œdematous limbs but healthy kidneys.

The different treatments recommended may be summed up in few words: chloroform, chloral, opium,

veratrum viride, and venesection during labor. The preparatory treatment aims at stimulating the other emunctories till the kidneys resume an increased or full secretion. There seems to be a greater unanimity among writers in the necessity for a milk dietary than in any other feature of the disease. The easy digestion of, and great depurating power also, of this agent, in demanding of the kidneys their utmost efforts, will probably explain this unanimity of action. The kidneys are the main source by which all toxicities of the blood are removed. As these toxins arise from so many different sources and pathological conditions, it is perhaps only correct that great diversities of opinion must arise regarding the cause of eclampsia. According to the case which the physician is treating is likely to be his opinion of the cause of eclampsia in that case. Where it seems desirable to use the bromides in treating these cases, the potass preparation should always be avoided, as its increase in the blood would increase the convulsive tendency. The same rule should be observed in the preparatory treatment of avoiding potass preparations for diuretic or laxative effects. It should always be remembered that in healthy urine potass forms nearly one-half of the total so-called uremic poison it contains. In other words, Bouchard has demonstrated by intravenous injections in rabbits that this element of the urine will kill one-third or nearly one-half as much weight as will the whole urine itself when

similarly injected. Bouchard's investigation proved that the potass always caused convulsive seizures and death, by stopping the action of the heart. His investigations showed that urea, which has for so long received the credit for poisonous power, has only about one-quarter of the poisonous effect of potass. Under many patho-

logical conditions, particularly febrile ones, and where the total amount of urine secreted daily is reduced greatly, the amount and also proportion of potass is greatly increased in the body through increased disassimilation, certain secretions, alimentation, and intestinal putrefactions.

Gonorrhœal Rheumatism Complicating Curettement of the Uterus.

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Beside mechanical complications occurring during curettement of the uterus, for example, consecutive to a false manœuvre, laceration of the cervix during dilatation, no matter what method is employed, perforation of the uterus by the curette (an accident which is hardly ever met with excepting in interference for post-puerperal or post-abortive infections), curettement has also been accused of causing an inflammation of the tubes, by propagation of the uterine inflammation, and especially to produce inflammatory attacks in tubes already the seat of some lesion.

These inflammatory attacks are accompanied by pain and fever, and the surgeon has before him all the symptoms of a pelvi-peritonitis.

In some cases, these symptoms have presented a sufficiently grave condition that death finally ended the scene.

But no writer up to the present time has reported a perfectly distinct case of gonorrhœal rheumatism following curettement, which has been absolutely demonstrated by a study of the history of the patient, by the gonorrhœal nature of the metritis, which itself was consecutive to a recent vaginitis, by the evolution of the arthritis, as well as by the localization of the latter in a single articulation.

We will probably be allowed to ask by what mechanism this arthritis was produced, as well as its pathogeny.

Now, it is well known that the opinion of the various authorities still differ as to the pathogeny of gonorrhœal rheumatism.

At the end of the 18th century, Hunter, Selle, Swediaur, and Cullerier distinctly mentioned the frequent co-existence of clap and

arthropathies, and since this time the discussions on this point have been very numerous and animated.

Today, the past discussions appear to be worn out, and the controversies of the past appear of little interest.

However, we should not ignore them completely. The erroneous theories have, in fact, found contradictions at all times, whose good medical sense and sound logic are certainly worthy of mention.

The efficient cause of gonorrhœal rheumatism is certainly a gonorrhœa. The impossibility of having a clear conception of gonorrhœal rheumatism caused some writers, among whom may be mentioned Bouillaud, to uphold that there was no such a thing as gonorrhœal rheumatism, that there was only a co-existence between real rheumatism and gonorrhœa. Now, such a theory is ruined by the three following arguments of Prof. Fournier, which he developed some years ago in his article on Gonorrhœa in the *Nouveau Dictionnaire de Médecine et de Chirurgie Pratiques*: 1. The frequency of this so-called co-existence indicates the relations of cause and effect: 2. The relapses of gonorrhœal rheumatism are parallel with the relapses of the gonorrhœa: 3. There are essential differences between ordinary rheumatism and the gonorrhœal variety.

In the lectures by Prof. Bouchard, an excellent contradiction to this doctrine is to be found, but on this we will not insist.

In what manner does gonorrhœa

act in the production of the rheumatism? Swediaur and Cullerier, influenced by the ideas of their time, credited it to a metastasis.

For Peter and Guéneau de Mussey gonorrhœa only acts by the coming into play of a rheumatismal diathesis which has been latent up to the time of the attack; it is the occasional cause of arthritis. Maurice Perrin goes still farther, for, according to him, gonorrhœa is a non-contagious disease of a rheumatismal nature; in other words, a rheumatism of the urethra. For Rollet there is an organic sympathy between the tissues of the articulations and the urethral mucous membrane: while, according to Fournier, they are reflex relations.

Pidoux and Feréol upheld the theory admitted at the present day, as far back as 1866. They say: "There exists a gonorrhœal diathesis as there exists a rheumatismal diathesis; the arthropathy is dependent on this diathesis."

Lasèque and his pupil, Diday (1873), developed a slightly different theory, which, as we shall see, is applicable to a certain number of cases. For these authorities, gonorrhœal rheumatism enters into the class of pyemic rheumatism; it is the expression of an attenuated pyemia, having its starting point in the urethral suppuration.

Today, as we have said, the theory of Pidoux is generally admitted.

With Prof. Jaccoud, in modern language this theory may be expressed as follows: Gonorrhœa is in the beginning a local affection: it is

caused by the vegetation of a micro-organism in the urethra, which was suspected by Donné and Jousseau, described by Salisbury in 1873 and by Bouchard in 1878, and finally studied by Neisser.

The ordinary complications, such as orchitis, cystitis etc., are produced by a surface propagation of the organism, but in some cases the latter penetrates into the circulation, and the disease, which was in the first place local, becomes general. There is then a gonorrhœal infection.

The determining cause of this infection is an arthropathy known by the name of gonorrhœal rheumatism. In favor of this theory there are some positive facts which are of great value.

Dr. Hallier has met with some micro-organisms in the blood of patients having gonorrhœal rheumatism. Dr. Bouchard has also discovered these organisms in four cases. Petrone has found the gonococcus in the blood and the liquids taken from the knees of two patients who had gonorrhœal rheumatism. Dr. Bousquet had the occasion to examine the liquid removed from the sternoclavicular joint, and demonstrated Neisser's gonococcus.

But in reality gonoemia (and may we be excused for using this new word), says Dr. Marfan, is not the usual condition of gonorrhœal rheumatism, contrary to the opinion of Prof. Jaccond? It would appear to be proven, according to this author, that the greater number of cases of this kind belong to pyemia.

Gonorrhœal arthritis can suppurate; the cases are infrequent, but they do exist, as is demonstrated by the cases reported by Lasegue, Talamon, Duplay and Bumm.

In cases of this kind the observers who have looked for Neisser's gonococcus in the fluids withdrawn from the joints declare that they have found microbes which had nothing in particular to be noted, that is to say, probably chains and clusters of pyogenic cocci.

Kammerer, taking for basis two cases, has declared that in order to find the gonococcus in the joints, recent cases should be examined. But this explanation only half satisfies us, and by the similarity with that which has been described in eruptive fevers by Dr. Marfan, we feel disposed to admit that there may be two manners of blood infection in gonorrhœa.

1. Gonoemia (gonococcus).

2. Pyemia (pus micro-organisms).

If the interesting researches of Bumm on pyemia should be the ordinary cause of gonorrhœal rheumatism. In his last paper he ends with the following words: "As to gonorrhœal rheumatism, which was formerly attributed to the gonococcus, we now know that it should be considered as a mixed infection, because only pyogenic microbes are found in the diseased joints."

In the case that we will relate further on, the joint, after having suppurated both in the first and in the second attack, we were not able to examine the contents of any of the

synovial cavities, and consequently we cannot be sure that the gonococcus was the only cause, or whether it was combined with the ordinary pyogenic microbes.

But we think that during the gonorrhœal metritis, which fact was demonstrated by a bacteriological examination of the pus coming from the uterus, the curette opened some lymphatic or blood vessels, and the infection, in spite of all the precaution taken, took place by this road.

When I detail my case I shall mention the care taken in order to obtain a perfect asepsis of the uterus; but, as is known, this asepsis is always relative and it is nearly always impossible to make it absolute.

As to the causes which predisposed this woman to the infection, we were not able to find any. Dr. Marfan sums up the predisposing causes or the ordinary causes of gonorrhœal rheumatism as follows:

"Are there causes which favorise general infection in patients having gonorrhœa? Considering the frequency of gonorrhœa in different stages of infection, it is more frequent in young people and the adult."

As to the sex, Ricord upheld that gonorrhœal rheumatism was allotted to man alone; but Cullerier, whose opinion is today generally adopted, demonstrated that women are not exempt. Some writers believe that the occasion of cold may perhaps have an influence, but Prof. Fournier is one of those who objects to this opinion.

Fatigue and over-work, according

to Besnier, have a real action on the genesis of gonorrhœal rheumatism, and here again Fournier does not think so.

Lastly, Ricord upheld that urethritis alone could produce rheumatism; it is for this reason that the arthropathies are so infrequent in the female. Gosselin replies that urethritis is common in women, and still more, it is well established that vaginal gonorrhœa, and even that of the conjunctiva, may give rise to rheumatism.

In this point of view two curious cases may be mentioned.

Drs. Testelin and Poncet, having practiced artificially a gonorrhœal inoculation in the treatment of a case of pannus, soon saw a gonorrhœal rheumatism developed in their patient. And what is more, in a newly born child gonorrhœal rheumatism is not infrequent, and Januxern has published twenty-eight cases in his thesis which certainly prove this fact well. Consequently all gonorrhœal foci may give rise to gonorrhœal rheumatism.

According to Rollet, gonorrhœal rheumatism only develops when the discharge is very profuse, but Fournier does not believe this, and affirms simply that it is only necessary for a gonorrhœa to be in an active state. Cherallier has denied this proposition, and upholds that the old chronic discharges may give birth to a general infection.

This brief enumeration of the opinions of various writers allows us to pass an opinion on the origin of the

infection in the case which we have personally observed. If we adopt the ideas of Rollet, Besnier and Fournier, we arrive logically at the conclusion that it was by the uterus that our patient was infected. Now in fact, when the curettement was performed, the urethritis and the vaginitis, which had been treated for several weeks by injection of permanganate and potassium, and with tampons soaked in one per cent. solution of resoicin in glycerine for the vagina, and by iodoform pencils for the urethritis, might be considered as cured. At any rate, in order not to be more affirmative than one should be on this point of the pathology of genito-urinary organs in women, at least it is permitted for us to affirm that *the discharge was not over profuse (Rollet)*; that *the gonorrhœa was not acute with green or yellow discharge (Fournier)*; in other words, *it was not in an acute stage (Besnier)*.

It remains now for us to expose the clinical evolution of gonorrhœal rheumatism, in order that we may be able to demonstrate in what type our case should be put. We are naturally unable to draw a conclusion from one case; consequently we only attach a secondary importance to the following considerations, and will only make a short citation of what Dr. Marfan has said on this point.

The moment of the appearance of gonorrhœal rheumatism varies according to the case. It is from the sixth to the twentieth day of the discharge that it usually appears. Swediaur thought that he could notice that the

discharge was suddenly stopped at the time that the pains in the joints made their appearance, and he found in this particular fact an argument in favor of the theory of metastasis. But it is known today that if by chance the discharge diminishes at the beginning of the articular symptoms, in the greater number of cases it undergoes no modification.

Gonorrhœal rheumatism may be grouped clinically under four forms.

- 1st. Arthralgia.
- 2nd. Hydroarthrosis.
- 3rd. Subacute polyarthrititis.
- 4th. Acute mono-arthritis (plastic or suppurating.)

Gonorrhœal arthralgia, so well described by Fournier, is often only the first degree of the three other types. It is constituted by vague pains in all the joints: these pains are worse by moving the limbs than when pressure is made over them: they are more acute in the morning, at which time they interfere considerably with the movements, and then it appears as if the joint became more limber, and the pain diminishes or disappears during part of the day.

Gonorrhœal hydroarthrosis especially attacks the knee. It is generally mono-articular, develops in a very sudden manner according to Velpeau, and occurs, on the contrary, according to Fournier, in an insidious manner. Collection of liquid forms quite quickly: it is at once abundant and hinders walking, but the joint remains indolent and there is no fever. The collection is slow in disappearing and may pass to the chronic state and

relapse with every new attack of gonorrhœa.

Subacute gonorrhœal polyarthritis forms a variety of true pseudo-rheumatism; it is a common form of the arthropathy. In this case the swelling attacks a certain number of joints, but fewer than in acute articular rheumatism.

The attack is less movable than in true rheumatism, and there is slight fever. The pain disappears at certain times in many of the joints, and becomes localized in one or two joints, the most often in one, where it remains stationed and very rebellious to treatment. The joint attacked remains diseased for a long time: it is sometimes the knee, sometimes the instep, sometimes the wrist and sometimes the temporo-maxillary, or the sterno-clavicular joints. Gonorrhœal arthritis has often been met with in the cartilages of the larynx.

Pseudo-gonorrhœal rheumatism may become localized in the synovial membrane of the tendons; the muscles of the leg, the extensors of the fingers and the toes (gonorrhœal synovitis): it may also inflame serous cavities, such as the retro-calcanean or the sub-calcanean (the heel pain of Swediaur), the pre-patellar pouch, etc. Muscular localization may also be met with during the evolution of the disease, such as myalgia, torticollis, lumbago; cutaneous localizations are also described, such as polymorphous, erythema, purpura, and lastly the endocardium may be attacked. Gonorrhœal endocarditis, whose existence is today well established, may be

either simple and slight or ulcerated and very serious.

Pseudo-gonorrhœal rheumatism cannot be confounded with true rheumatism, if the following characteristics are borne in mind in making the diagnosis.

Gonorrhœal rheumatism does not become generalized to the extent of true rheumatism; it is less movable and remains more in one joint; resolution is difficult: the patients have neither profuse perspiration nor the urine of true rheumatism; when patients with gonorrhœal rheumatism are bled, the blood has no clot. Pseudo-rheumatism is rarely accompanied by visceral complications.

However, Ricord, Hervieux, Molen and Leloir have reported cases of pericarditis and the endocarditis; G. Seé a case of pleurisy; Vidal phlebotis; while Ricord has mentioned cerebral symptoms, and other authors have met with paraplegia.

Gonorrhœal rheumatism is sometimes accompanied by ocular metastases and gives rise to that special form of gonorrhœal ophthalmia which has been called rheumatic and non-contagious and also to serous iritis.

The various terminations of this form of gonorrhœal arthritis are by cure, arthralgia or persistent hydroarthrosis, or by ankylosis with muscular atrophy.

Gonorrhœal arthritis may end by suppuration, and the suppurative form appears to be a separate type. It has been denied by Rollet, but has been demonstrated by the cases due

to Fournier, Prichard, Lasegue and Talomon. Eisenmann lost a patient from pyemia following gonorrhœa. Dr. de Lapersome mentions a case in which a sterno-clavicular arthritis suppurated. Martin mentions five cases of death by visceral complications.

These cases of suppurative arthritis in gonorrhœa comes to the support of the opinion that the greater number of infectious diseases may at some time in their progress become complicated by true severe or attenuated pyemia, and that in the course of infectious pseudo-rheumatism one should bear in mind the possibility of pyemic complication.

Consequently gonorrhœal arthritis may undergo supuration which is secondary. It has also been said that it could end in a white swelling, in which case the first affection prepares the ground for the second. And lastly, it has been upheld that gonorrhœal rheumatism could lead to chronic rheumatism. Besnier has questioned this assertion and believes that it is erroneous.

According to this author, gonorrhœal rheumatism gets well without leaving any malformation of the bones. What may have given a change to the bones is the external periostitis of the articular extremities of the fingers, which so often accompanies gonorrhœal infection, and which may produce fusiform deformities in the fingers. Besnier believes that this gonorrhœal periostitis, which is more frequent than is generally believed, gets well without leaving any deformity.

In our case two questions should be answered. 1st. Was it a real gonorrhœal rheumatism? 2d. And to what form of gonorrhœal rheumatism belonged the arthropathy that we observed in this case?

The diagnosis of the joint symptoms of gonorrhœa is based on the parallel that we have already established above, between true rheumatism and gonorrhœal rheumatism, and especially on the fact of a discharge being present in the urethra.

Now, the woman in question had her uterus filled with mucus, which was literally swarming with gonococci; she had, other than this gonorrhœal affection, no disease which could produce an acute arthritis.

The pains appeared suddenly and rapidly arrived at their maximum, and persisted for some time in one joint, then disappearing slowly and progressively, and appeared to us to be very characteristic, when we considered that in this woman the existence of a gonorrhœal metritis and of an arthritis originating from an infection from the gonococcus.

As to the clinical type to which this case belongs, it is a point on which we are rather embarrassed. For that matter this is often the case in clinic: the classification of the types of each disease only indicates the most distinct forms, between which there exists a number of intermediary forms. But considering the case altogether, I think that it is safe to say that it was a subacute gonorrhœal mono-arthritis.

Case. Patient, aged twenty-three

years, servant. Entered the Broca Hospital on the second day of May, 1894.

The patient's mother was subject to facial neuralgia, which is quite severe and which has lasted, according to the patient, for several years. She never had any pains or any disease which would recall rheumatism or which belonged to arthritism. She died about two years ago.

Her daughter cannot tell us what was the cause, and she cannot give us any details of her maternal and paternal grandparents. The patient's father was alcoholic, and she does not know of any disease that he may have had. He was drowned, but our patient cannot tell us if this death was voluntary or if it was the result of drunkenness.

In her childhood this young woman was subject to suppuration of the scalp and to impetigo.

There are a few cicatrices which are hardly apparent. At eighteen she had a typhoid fever which lasted for about two months and from which she convalesced slowly.

Towards the middle of April, a few days after coitus with a person that she did not know, she began to feel a sensation of heat at the vulva and in the urethra when she passed water. These pains continued to increase to such an extent that she could not continue her work and had to come to the hospital.

Examined on May 3d, the following symptoms were noted in the genital organs. The vulva was inflamed: the labia majora presented

slight oedema; their internal aspect was red and swollen, and the labia minora were also swollen, and erythematous. The hair which covered the labia majora had at their base some small white pustules which reposed on a small, hard, inflamed erythematous base. Some of these pustules were broken, and small crater-like ulcerations measuring a millimeter to one millimeter and a half were seen: there was consequently a vulvar folliculitis.

The internal aspect of the thighs at their upper part was red, and also presented a very few small pustules. This erythema, which was similar to an intertrigo, was without doubt due to the flow of irritant discharge from the vulva.

By spreading apart the labia minora, the orifices of Bartholini's glands were red: pressure on the gland could not express any pus.

Vaginal examination gave us two orders of information. First were regarding the vagina; the second the urethra.

Introduction of the vagina was painful; the vaginal walls were hot and granular to the touch: pressure on the cervix uteri was not painful: the culs-de-sac were free and perfectly supple.

When the index finger was pressed on the anterior vaginal wall, and by bringing from behind forwards toward the meatus—in other words, by pressing the vesical end of the urethra towards the meatus—a drop of greenish pus was made to come out. A large quantity of muco-purulent

liquid came from the vagina. The introduction of the speculum was very painful, and with much care and patience we finally were able to introduce it.

After an irrigation with tepid boracic acid solution, in order to remove the pus which covered the vaginal walls, we found that the latter were red and swollen. The pus was very adherent and could only be removed by a Doleris brush.

Consequently this woman was the victim of a vulvo-vaginitis and urethritis of gonorrhœal origin, and complicated by a metritis which was still localized in the cervix.

The following treatment was prescribed: irrigation of the vulva and thighs with a one in 4000 solution sublimate: damp compresses wet with the same solution to be applied to the parts: calmative irrigations with an infusion of poppy and marshmallow for several days in order to calm the pain.

On May 10th, the erythema of the thighs had completely disappeared under the influence of cleanliness and the above mentioned dressings. The pains were very much less after the second day. The vaginal and urethral symptoms were the same, that is to say, the purulent discharge with pain, when the speculum was introduced.

After this date the dressings of the vulva were stopped. Morning and evening the patient received vaginal irrigations and a one in 5000 solution of permanganate of potassium; each irrigation was followed by the intro-

duction of a tampon soaked in a 1 per cent. solution of resorcin in glycerine.

May 15th, her condition was about the same, although perhaps there was a slight amelioration in the symptoms. As the urethritis still persisted, Dr. Renaut introduced a 25 per cent. iodoform suppository into the urethra every morning.

May 30th, the vaginitis and the urethritis were very much improved: pressure on the urethra could no longer express any pus and the vaginal walls were secreting very much less. But the cervix remained large and painful, and by its orifice a white opaque muco-purulent discharge was still found on the strip of iodoform gauze which had been inserted. One of these strips of gauze was examined microscopically. A small piece was placed on a cover-glass and then dried: it was then stained with gentian violet washed with water and examined with an oil immersion power. There were found in the pus cells many diplococci having a biscuit-shape, and were stained dark violet. Another cover-glass was with the same stain, then treated by Gram's solution and then fixed in alcohol.

The above mentioned organisms were not found in this preparation: they were seen with difficulty when Abbe's apparatus was removed, and then they were seen to be completely decolorized. The microscopical characters and reaction were those of the gonococcus. The same treatment was continued.

On June 10th the patient complained of pain in the pelvis about in the middle line. These pains were noticed at the time of her menses, which occurred a few days ago, and since had continued nearly every day. The menstrual flow had, instead of lasting for five or six days, as was usually the case with this patient, persisted longer than was customary, because it was now eight days since it had commenced, and it still continued.

The treatment was not changed, but the patient was kept in perfect quiet and the tampons were more carefully placed in the vagina.

On June 15th the hæmorrhages had continued nearly without a stop, and to such a point that this young girl, who was stout and vigorous when she came into the hospital, was now in a very weak condition. As the continuance of this hæmorrhage was now a real danger to her, curettement was decided upon.

In order to prepare the patient for this operation the irrigations of permanganate were stopped, and the dressings were replaced by swabbing out of the vagina with a one in two thousand solution of sublimate morning and evening.

This preparation was performed, according to the precepts mentioned by Pozzi in his work on gynecology. Two fingers were introduced into the vagina, and one of them applied against the cervix; the other was placed at the bottom of the cul-de-sac; first the anterior, then the posterior, and lastly both lateral

ones. For each washing, several liters of sublimate were employed, and after each irrigation the vagina was packed with iodoform gauze; these dressings were made twice a day for six days.

On the 7th day after an irrigation, the patient was put under chloroform, and curettement was performed with all the necessary precautions, and was ended by a cauterization with a 10 per cent. creosote solution in glycerine, followed by drainage of the uterus with iodoform gauze and vaginal packing of the same material.

On June 23rd, which was the day following the operation, the patient felt very well, did not suffer, no fever, and in brief her condition was as good as possible.

June 20th, the patient was taken in the evening with a violent pain in the right knee. This pain, which was dull in the beginning, became more and more acute in a few hours, so that the patient was crying out in the morning. On examination, the knee was found slightly increased in size, and had taken on a globular shape. The patellar shock showed us that the synovial cavities contained a small quantity of fluid. The articulation was covered with a thick layer of tincture of iodine and done up in cotton and then put on a splint. An injection of morphine was given in the evening. Morning temperature, $38^{\circ}2$; evening, $38^{\circ}5$.

June 30th, the pains have continued with the same intensity since their beginning. Each evening the patient had a morphine injection, in

order that she might sleep for a few hours.

No discharge was seen to come away from the vagina, consequently dressings were not touched, and the temperature fell to normal.

July 2d, the spontaneous pains were much less in the right knee, but the pains were provoked by the least movement and were as severe. When the right leg was raised up the patient cried out, consequently in order to put her on the examination table great care had to be taken.

The vaginal packing was removed as well as the drainage gauze, and the discharge was found to be extremely small. A good irrigation was then given, followed by a loose packing of the vagina with iodoform gauze.

On July 7th this packing was removed, and as there was no discharge, a new one was not put in. The patient was ordered vaginal injections of the sublimate morning and evening.

After this last change of dressings we found small ulcerations on the cervix uteri near the orifice, and from this a doubt was held as to the cure of the metritis.

The pains in the left knee were now very much better. When the patient does not move there is no pain, but when the limb is moved they become quite sharp, although they are nothing like what they were when the attacks first occurred. The splint was removed and the patient ordered to move the limb in order to avoid ankylosis.

July 25th, the condition of the

right knee is very satisfactory; there is no more pain, only a slight stiffness in the movements of flexion of the leg on the thigh.

Examination shows that the ulcerations of the cervix are considerably enlarged, and after having taken some precautions as for the curettement, an amputation of the cervix according to Schröder's method was performed August 2d.

On Aug. 4th there was a fresh painful attack in the right knee identically like the first one, extremely violent and accompanied by an intra-articular collection. The pains are spontaneous and are extremely increased by movement.

The intra-articular collection is small, but, as in the first attack, it is easily demonstrated by the patella shock.

On Aug. 20th the amputation of the cervix has given excellent results: the ulcerations have not returned; the mucus which comes from the uterus is transparent.

The vaginal walls have now a normal aspect. No pus can be expressed from the urethra, and the genito-urinary organs may consequently in the clinical point of view be considered as cured. However, the former treatment with irrigations of permanganate of the vaginal tampons was continued until the patient left the hospital on Sept. 15th.

The condition of the knee continued to improve, and when the patient was last seen there was only slight stiffness in the knee.

Some Conclusions Drawn from Clinical Observations in the Study of Cervical Endometritis.

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Inflammation of the mucous membrane lining the cervical canal, or cervical endometritis, also called endocervicitis, is among the most frequent diseases among women. The fact that gynaecologists of late years are aspiring to oöphorectomies, and hysterectomies, and laparotomies, and all the otonies and ectomies upon which modern theorists elaborate with apparent relish, has for the time covered up or hidden from view the more common and simple maladies with which so many poor women suffer. But, however much may have been said or written upon the grand achievements of modern gynaecologists, and the successes that have attended their operations, and however much of gladness and praise has been sounded by suffering mortals who have been relieved and cured by these skilful operators—tempting others to enter the field for fame—not one of them has achieved more nor relieved his patients more than when he has cured a chronic endocervicitis.

The symptoms of chronic endometritis are so familiar to every one, I suppose it is hardly necessary for me to take up valuable time in dwelling upon this. Suffice it to say, a woman who has suffered for years with this

affection, until she is literally worn out, nervous, with headaches, back, ache, and all sorts of aches and pains. is of all men or women most miserable.

Among the most frequent causes of endocervicitis there stands laceration of the cervix, corporeal endometritis and intemperate coition. I doubt very much if taking cold or standing on a damp ground, getting feet wet, etc., has anything to do with causing an inflammation of this particular organ, unless it is when the organ is in a state of hyperemia, if you please—at menstrual period or immediately after cohabitation.

Lacerations of the cervix to a greater or less degree are of a very frequent occurrence in child-bearing women, and may be a very fruitful source of this trouble, though this is denied by some.

Corporeal endometritis, arising from whatever cause, and especially from imperfect cleansing of the uterine cavity after labor—either mature or premature—will sooner or later, by its acrid discharges being poured out through the cervical canal, if for no other reason, involve the cervical lining. But of all the causes of this distressing trouble, I believe not enough importance has

been given to intemperate coition. To say nothing of this very common cause among prostitutes, it is of no infrequent occurrence among the better class of women.

The hyperæmia taking place in the generative organs of the female during the act of copulation is certainly sufficient, if this act is repeated at short intervals for a great length of time, to after a while leave a lasting impression upon the more delicate tissues involved. The cervical mucous membrane being covered with a very delicate epithelium, and at the same time being exposed to very rough treatment frequently, it is no wonder if it does often become inflamed.

The impression that a woman with endocervicitis will not become impregnated is false. Many cases do become pregnant: in fact, I hardly believe that a moderately severe chronic inflammation of the cervical mucous membrane is any obstacle to impregnation.

I will mention two or three cases to illustrate my position:

CASE I.—Mrs. B., mother of one child about eighteen months old, sent for me and gave history of having suffered for many months with all the symptoms of cervical endometritis—had lost flesh and was badly run down. She said her menses had been irregular for a year or more, frequently missing a month or two: this time had missed about three months, but did not believe she was pregnant. Upon examination I found a copious muco-purulent discharge covering not

only the external but the entire visible portion of the cervix. The cervix was very much enlarged, with very extensive erosions. I really thought it impossible for impregnation to have taken place with the cervix in such a condition as I found this one, and stated to her that the probabilities were that she was not pregnant, but in cleansing the canal and making some applications, I suppose I must have passed my instrument beyond the dead line and caused an abortion. Evidently from her complaint, this woman had suffered with cervical inflammation long before she conceived.

CASE II.—I was called last July to Mrs. W. for persistent nausea and vomiting, which she thought indicated pregnancy. After giving her all sorts of stomachics, tonics, sedatives and anodynes to no avail, I got her consent to make examination with speculum, and found cervix very much as in case I; if any difference, more inflammation and more erosions in this case than in Case I. I cleansed the part, including the canal, and applied tinct. iodine and carbolic acid, equal parts, every second day, and soon had the satisfaction of seeing an improvement, and in March I delivered her of a nice baby. This woman gave a history of some womb trouble since the birth of her first child, five or six years before, and indeed a marked bilateral laceration was dated back to her first delivery, proving conclusively, I think, that she must have had an endocervicitis for a long time, notwithstanding she has followed the

usual custom of having a baby after every evolution of the maternal generative organism.

CASE III.—Mrs. E., a primipara, gave the following history: A year or more before I was called, she had a fright after having missed her menses only a week or so, and fainted and fell while out in her flower yard, and after being put to bed it was discovered that she was having a profuse uterine hæmorrhage, which was thought at the time to be only a return of the menstrual flow. She was given constitutional treatment only, as she stated, and after many months of suffering, and being bed-ridden for a greater part of the time, she was finally curetted and treated otherwise locally as well as constitutionally, and was very much improved and thought she was getting well, and evidently had conceived again—I say again, because I believe the origin of her trouble was an early abortion—for I found her with a persistent uterine hæmorrhage, very much emaciated, run down and nervous, and finally convinced her of her conception and abortion by curetting the uterus, taking away a rather large quantity of the decidual membranes and placental tissue, after which I treated with an occasional curetting, antiseptic douches and applications of iodine and carbolic acid, together with iron, strychnine and other restoratives constitutionally. Under this treatment she rapidly improved, but before I had succeeded in perfecting a cure of the cervical inflammation, human nature asserted itself, usurped

authority, and overstepping my interdiction, she became pregnant at the very first and only opportunity, as they declare, and is now under rigid surveillance and the tenderest care to prevent another abortion. The cervical inflammation in this case was not so great nor so extensive as in the two former cases, but I am positive that she had an endocervicitis when she conceived the last time, and rather think she had when she became pregnant the second time.

These three cases are sufficient, I think—though I could cite many more—to demonstrate the fact that chronic endocervicitis is not a bar to impregnation.

In this day of microbes and bacteriological investigations, a paper upon a subject of so much importance to the practitioner would probably be considered incomplete without some consideration of the bacteriological aspect of this disease.

Standard works on gynecology are not replete with suggestions upon this, as some think, important feature in this very common disease, but Mundé and Rau, in writing upon corporeal endometritis in *Sajous Annual* of 1893, state that Brandt has found in that disease as many as fourteen different species of micro-organisms; and one may readily conclude from his further remarks that he is undecided as to whether any one of these species is responsible for the pathogeny of that disease, inasmuch as pathogenic and non-pathogenic, as well as pyogenic micro-organisms have all been found in the secretions of non-

inflamed vaginal and cervical mucous membrane.

I am of opinion that in the cervical canal, whether in a state of health or disease, may be frequently found both pathogenic and non-pathogenic germs: therefore we may conclude that cervical catarrh is not necessarily a disease of microbic origin.

One of the greatest troubles we may experience in treating and curing these cases lies in the difficulty of getting the full consent and perfect co-operation of the patient. No amount of argument sometimes will convince our patient that she should not be cured in a very short time, whereas those who have had much experience with the disease, know it will not be wise to place any limit whatever on the time likely to be required to effect a cure. My experience in treating this trouble teaches me that a better plan is to tell my patient: "I know I can cure you if you will give me time and your co-operation. It may take a few months or it may require many months."

Many plans of treatment have been suggested from time to time: some advocating the use of the curette—some the dull curette, and others the sharp.

The old doctrine of "ulceration" caused many a poor woman to have to undergo the tortures of applications of lunar caustic, and what was worse than the application itself, it not only generally did not cure, but made matters worse in the future. The most successful plan or treatment in my hands has been curetting,

when necessary, with dull curette—I am of opinion that the sharp curette should be very seldom, if ever, used in the cervical canal—followed with perfect cleansing with sterilized water as hot as can be well borne; dry the part thoroughly, and apply by means of glass pipette tincture, iodine and carbolic acid, equal parts, being careful to touch every part of inflamed membrane with the lotion. When the mucous membrane has become indurated from long continued inflammation, I have found iodoform a most excellent application—it may be applied dry or in the form of an ointment.

Constitutional treatment should never be left out of the question. If the woman is anæmic, as many of them are, give her strychnine and iron, and it may be well to combine with this some of those drugs which are said to exert a specific influence upon the uterus: especially is this well in those cases of long standing, where sub-involution has existed and there is induration or hardening of the cervix. Of this class of drugs I have had good effects from the preparations of hydrastis, and if a tendency to metrorrhagia exists, combine with this fluid extract ergot and fluid extract viburnum prunifolium.

It is generally a matter of great importance to interdict coition, or any kind of exercise that would be calculated to irritate or increase the flow of blood to the part. But the most important of all is to encourage the patient to co-operate in whatever plan of treatment is adopted until a

cure is effected. If there has been an extensive laceration, the case should never be pronounced cured until this has been repaired, as a restoration of the normal circulation in the cervix is imperatively necessary to a perfect success.

SOCIETY PROCEEDINGS.

The Detroit Gynæcological Society. Regular Meeting, Wednesday, March 4, 1896.

The President Dr. N. W. Webber, in the chair.

"OBSTETRICAL COMPLICATIONS."

By DR. CHAS. DOUGLAS.

Discussion.

Dr. W. P. MANTON.—Such papers as the doctor has given are interesting and helpful, and while nothing definite is stated in the way of the doctor's own personal views in regard to treatment, I think possibly in the discussion of such a paper a good many different ideas might be brought out. In speaking of the nipples of primipara he mentioned the application of alum water. The application of astringents to the nipples of pregnant women is, of course, very common, but it seems to me extremely illogical. The effect of astringents on the epithelium of the nipple is to produce more or less hardening, and in some instances, when too strong, an actual tanning. Now if we produce this condition, as soon as the moist, warm mouth of the child is applied, and we have the biting and friction produced by the hard gums, it seems to me we are very liable to get excoriations. I have seen this happen, and for a long time have

advised applying nothing but water, bathing the nipples several times during the day. As a result I have seen less cases of excoriations, cracks, etc., and I believe it is the best method. I think when excoriations occur it is time enough to treat them. The suggestion to examine all cases in regard to the condition of the nipples is a very good one. The habit of corset wearing is a very pernicious one, and undoubtedly often brings about retraction and depression of the nipples, with future disastrous results. In some instances, where they are so small it is difficult to get at them with the fingers, I have tried a test tube, exhausting the air and drawing the nipples into it. A very neat little operation for this condition of depressed nipples has been suggested by a German authority. An elliptical cut is made around the nipple, care being taken not to sever the milk ducts, and the edges of the wound are then brought together in such a way as to force the nipple forward. From my study of phlegmasia I have come to the conclusion that it is almost invariably the result of a run down condition of the patient plus some septic inflammatory condition of the veins of the uterus. In, I think, nearly every instance something of

the kind has been found. The inflammation is undoubtedly of septic origin. The question of eclampsia is such a broad one that I doubt whether it will ever be settled. The great difficulty in arriving at any pathological standard in eclampsia lies in the fact that we find, in women who die from this cause, such a variety of pathological lesions that it is impossible to say what is the cause of the trouble. One method of treatment, which is novel, but which I see is going the round of the medical press, is that suggested by a certain physician. The gentleman states that there was a time when he got out of his bed to see cases of eclampsia with fear and trembling, but now he had a method that was invariably successful and life-saving. This consisted in the intra-venous injection of normal saline solution. He has since published an article which is being widely quoted. The reasonableness (?) of this procedure must be apparent to any one who has had to do with eclamptic cases.

Dr. J. H. CARSTENS. — I agree perfectly with almost everything the writer has said. I think the point made by Dr. Manton on the use of alum water and such things for the nipples is good. I do not think there is any necessity for them. They make the skin brittle, while my idea is always to have the nipple soft, and I have used massage for a number of years, applying nothing except perhaps a little glycerine or vaseline: but there is a variety of nipples which you cannot get out by any method, and I believe there are cases where there are absolutely no ducts at all, though there may be glands, and in these cases you cannot get any milk or develop the nipples. I have had a few such cases sent, to me and I could do nothing with them. The

cases of phlegmasia recorded were evidently simple cases, the one where the child was taken on the knee being of a mild variety, and shows that the woman who is run down is more liable to infection of that kind than a woman who is perfectly strong. I do not quite agree with what has been said on eclampsia. I think it is nearly always due to trouble of the kidney, and such cases are very precarious and in very such case that does not immediately subside with treatment I bring on premature labor. I delivered a woman last year prematurely, and she had convulsions afterwards, so that I think she had a narrow escape. The urine was about solid with albumen. The case that the doctor relates when the albumen still persists I think is very serious, as she will be sure to have trouble if she again becomes pregnant, and probably it will end in chronic albuminuria. The simple fact of œdema of the lower limbs is no sign of trouble with the kidneys: it may be due to weakness of the veins or pressure of the gravid uterus. It is remarkable how you can be deceived in these cases: after many negative examinations you will suddenly find the urine almost solid, and then it will go again. Constant vigilance must be exercised. This has been the cause of much dispute, as in many cases the albuminuria has been overlooked.

Dr. J. J. MULHERON. — I did not have the pleasure of hearing all the paper, but I infer from the discussion in regard to the development of the nipples that the reader recommended the application of astringents as preparatory treatment. I would take exception to that with the other gentlemen. My rule has been to advise massage of the nipple, without the application of anything, during the last two months of pregnancy. I

think that treatment has been very uniformly successful, and I can say that I have very little trouble with primipara who has followed out this plan of treatment. You can do a great deal by massage in developing what might be called rudimentary nipples. It also toughens the nipple and prepares it for the child. When the nipples have not been prepared in this way a good deal of trouble is usually experienced in nursing. I would take exception to the statement that albuminuria is universally present in cases of eclampsia. I recall a case where the most careful examination failed to reveal a trace of albumen—the most severe convulsive explosion I have ever witnessed, and during the time of the convulsions and for two weeks after the child was born, during which the woman was in a semi-comatose condition, there was not the slightest appearance of albumen in the urine. That single case shows that there is something back of the kidneys which causes these convulsive explosions. I admit that in the great majority there is albumen in the urine, but the albumen itself I have never looked upon as a harbinger of trouble. I have treated women in whom the albuminuria had never disappeared up to the time of parturition and they have gone through with no trouble. In these cases the urine was abundant, and I think the suppression of the urine is more serious than the presence of albumen.

Dr. HELEN WARNER.—It does not seem to me that the fact that a woman had convulsions without albuminuria, or albuminuria without convulsions, is conclusive. I have seen cases of convulsions where no albumen was detected in the urine before labor. I have confined women without convulsions who had profound symptoms of uræmic poisoning during the latter months of pregnancy. But I still

think that true eclamptic convulsions do not occur without some accumulation of toxic elements in the blood which should be eliminated by the kidneys. There are some women whose nervous balance is so easily disturbed that a very small dose of these toxic elements is sufficient, when aided by the cerebral congestion of labor, to bring on convulsions.

Dr. DOUGLAS.—In discussing the treatment of the nipples, I think the members failed to grasp the fact that with the application of alum water, which is merely one of the many I use, I mentioned a liberal friction at the same time. I have found that in the majority of cases patients feel that they are doing more, and will follow directions more carefully, if they are applying something, and I frequently prescribe something as an application, not that I expect any results from the remedy, but to ensure a thorough rubbing. With regard to Dr. Manton's suggestion of applying a test tube for sunken or short nipples, the doctor did not state whether he used it prior to or during lactation. I have for years applied a large mouthed bottle, first filling it with hot water and applying it immediately after emptying it, but have not found it very satisfactory during lactation, though prior to it, it might be of benefit. Coming to the subject of eclampsia, the remarks that have been made seem to be hung upon the albuminous condition of the urine more than, I think, is justifiable. I would not be thought to look upon a case of albuminuria as not being a case for anxiety, but as the capacity of the kidneys is somewhere about five times greater than their normal demand, a small amount of albumen does not necessarily show enough diseased tissue to indicate danger. (The question of prophylaxis has been well treated by Dr. Longyear,

and if the patient does not respond so as to give a satisfactory elimination, that is if the oedema would not come down to a very small amount, and all head symptoms disappear, I would be in favor of such prophylactic treatment, but it is very difficult to decide exactly where that point is.) The nervous influence of the solar system has a very great power in controlling the ordinary secretions, and I believe the mental condition of the patient is also often a strong factor in producing retention in these cases. We have every day instances of the disturbance of the kidneys by mental and nervous influences. This is commonly demonstrated by the increased urinary secretion in the hysterical and nervous patients from slight disturbances.

If there is this power to increase the flow, we must accept the same power to diminish it, and this is commonly seen in the diminished flow accompanying the inception of all febrile irritations, also frequently during cerebral irritation of typhoid fever, pneumonia, the exanthemata, and many other serious diseases. It is particularly present in Meningeal affections. All these may, and generally are, free from any lesion of the kidneys, save the disturbance of their healthy nerve supply. This diminution of their work causes a rapid increase in the blood and tissues of the body of those poisons which are eliminated by the kidneys. Now we know the source of these poisons is mainly from the alimentary tract. During the temporary urinary suppression caused by cerebral irritation in febrile diseases, nature protects the patient by cutting off the appetite and creating a distaste for food, there-

by removing this source of poison, and thus lessening the labor devolving upon the kidneys. This does not occur to the parturient woman, who generally enjoys a good appetite and thus demands continuous urinary eliminations; but even in these temporary urinary suppressions of febrile irritations, we have in many families the same eclamptic seizures. It is a common thing to have these appear in all the children of such a family when under a febrile strain. We find the same disposition to cerebral irritation in many adults under slight constitutional disturbances. With them it is historical to become delirious for slight fever. In both of these classes we commonly attribute these results to the fever, not looking farther into the pathology, as they usually recover as soon as the bowels and skin are brought into activity; but where these patients suffer from serious lesions we find a high rate of mortality, and death comes usually with the same coma or convulsions as in the eclamptic parturient woman. Here we see the same forms of death in febrile and non febrile cases; and the pathological accumulation of poisons in the blood with or due to defective action of the kidneys is the same in both. Is it not reasonable to consider this as the dangerous factor in both cases? If we grant the same nervous susceptibility hereditary or acquired, to these parturient women that we know exists in those other cases, we should expect eclampsia or coma in them as we do in those other classes always. I have not seen any statistics bearing on the previous infantile susceptibility to convulsions of eclamptic parturient women.

REVIEW OF GYNÆCOLOGY.

PUERPERAL CONVULSIONS WITH UREMIA. By D. G. SIMMONS, M.D.
[CONTINUED FROM MARCH NUMBER.]

I therefore deduce the following principles and rules of action.

1.—The importance of each woman, shortly after conception, submitting herself to the surveillance and management of her proposed medical attendant.

2. The duty of physicians to educate their patrons as to the necessity of this surveillance during pregnancy.

3.—The importance of the medical attendant, as soon as albumenuria with its train of evils manifests itself, and refuses to yield to the proper remedies, promptly terminating the pregnancy just as soon as safe viability has been attained, or even before that if the mother's safety demands it.

The first proposition needs but little elaboration. There is a very important function to be performed—the most important and the most perilous to which woman is subjected—and she should be prepared throughout the term of pregnancy to discharge this function in the way that is most conclusive to her own safety and that of the offspring.

Her diet, her habits of life, should all be laid out before her, and a strict oversight of all the most important functions should be exercised by the medical attendant. More especially should she be warned to notify him if any scantiness of urine or any swelling should occur. The fact that she has passed safely through the ordeal once or oftener is no guarantee for the future. Two of the above cited

cases were multipara, and had had no previous trouble of any kind. Nature has to do the work, and she should not be handicapped by improper or vicious habits of life through ignorance, as is so often the case, but she should be bolstered up and placed in the best possible condition to discharge her duty.

But the majority of women, and their husbands with them, are not informed as to the necessity of this sort of oversight. They think that more or less suffering and disturbance is incident to the pregnant state, and attach but little importance to it till endurance is exhausted.

This is the doctor's fault. It is his province and his duty to educate them in these matters to which their attention has not been called, and bring them to a realization of the paramount importance of keeping well, and the peril to which their negligence might subject them.

The most important and effective treatment is the prophylactic. Doctors, especially county doctors, are responsible for a large amount of suffering by reason of their negligence along this line.

Whether the patient has been properly managed or not, when uremia appears, and refuses to yield to the proper remedies, in the interest of both mother and child, just as soon as the child is sufficiently developed to maintain a separate existence, or before that if the mother's safety demands it, the necessary steps should be taken to terminate the pregnancy, before the uremic poison should have time to work its devastations to a fatal extent on the nerv-

ous systems of both of these innocent beings.

Seeing that the pressure on the kidneys, the prime, and possibly the sole cause of the uremic state, cannot be removed until the uterus shall be emptied, when this state of things occurs there can be no good in waiting, especially after tentative treatment has been exhausted. I apprehend that very near all the fatal cases of puerperal uremia might have been saved if the proper remedy had been applied in time. I feel sure that the third case above cited might have recovered, with the offspring living and healthful, if advice had been sought four or six weeks sooner.

Where the patient is properly looked after, by a regulation of the diet and habits, and the proper cooling and reducing medicines, it is not unfrequently the case that even where there are more or less albumenuria and swelling, the patient may be carried through to the full term of pregnancy without serious risk to mother or child, but the doctor should be the judge of the propriety of interference, and he should be watchful and ready to interfere when it is proper to do so.

All these conditions and requirements should be explained to the patient, and she and her friends should have a thorough comprehension of her condition, and of the necessary treatment.

HYPODERMIC USE OF VERATUM VIRIDIE IN THE TREATMENT OF PUERPERAL CONVULSIONS. By H. L. KNAPP, M.D.

I can think of no condition more startling to practitioners of medicine, particularly those in country districts remote from professional assistance, than the development of puerperal convulsions,

About the middle of November, 1895, I was called some eight miles in the country to attend an obstetric case. I had never been called to treat the patient previously, but did not suspect any unusual difficulties ahead. Upon my arrival about 9 p. m., found the patient well advanced in the first stage of labor, and apparently doing well. She was a healthy primipara, age about twenty-one.

Upon examination found a normal presentation, with slight dilatation of the os uteri. Patient seemed very excited and nervous. Upon general examination found she was quite badly bloated—lower extremities, hands and face. After thorough questioning was alarmed to find undoubted evidence of serious uremic poisoning. It was then too late to do anything for the relief of the condition, and could only wait and meet the emergencies as they manifested themselves.

Labor, much to my surprise, progressed nicely. Nothing out of the usual order of things occurred, and at 3 A. M. the child was delivered. I was inclined to congratulate myself on this satisfactory outcome of a case which presented such grave conditions, although, on the contrary I felt sure there was trouble ahead. As events proved, there was trouble—plenty of it.

On account of the nervous state of the patient I had administered ten grains of bromide of potash, and had gone in another room with the intention of getting a little rest. Suddenly I heard the nurse call, "Doctor! come quick," and I realized on the instant that the anticipated convulsions had appeared. The patient was rigid from head to foot, frothing at the mouth, and all symptoms of a grave condition. The first convulsions continued about five minutes, though it seemed half an hour. I at

once administered, hypodermically, one-fourth grain of morphine, and then gave inhalations of chloroform. As the muscles relaxed the patient became semi-conscious; but only for about 15 minutes, when the convulsions returned with increased force. The second fit lasted about twelve minutes. Without going into unnecessary details, I will state that this was the order of occurrences for the next three hours. In spite of the liberal use of morphine, chloral hydrate, bromides, chloroform, etc., the convulsions did not relax in force or frequency, and my patient, at the end of that time, presented symptoms of rapidly approaching dissolution.

I had sent for Dr. Rogers, my neighbor colleague at Newark Valley. He arrived at about 7 A. M. We at once administered, hypodermically, eight minims of "Lloyds specific" veratrum viride. In less than fifteen minutes pulse was reduced from 140 to 60, and with this there was a general relaxation of the muscular system. The spasms did not recur. Two hours later we administered a second dose of five minims veratrum viride. Patient had passed no urine in 24 hours. I introduced a catheter, but there was no urine in the bladder. Left a solution of bromide and chloral and went home. Returned at 9 P. M. Found the patient quite bright. Had no more convulsions, and had passed four pints of urine. She made an uninterrupted recovery. Since this experience would feel unequipped for the occasion if I did not have a quantity of reliable veratrum viride in my obstetric "grip," together with a hypodermic syringe in condition for instant use.—*N. Y. State Medical Reporter*, Jan., 1896.

VAGINAL OOPHORECTOMY.

The author advocates vaginal

oophorectomy for the removal of small cystic prolapsed, painful or adherent ovaries or small tubal cysts of pus tubes, to the abdominal method, and claims the following advantages for the vaginal method:

(1) Rapidity of operation—12-20 minutes.

(2) Freedom from hernia.

(3) Freedom from shock and vomiting.

(4) Freedom from adhesions or intestinal injury.

(5) Freedom from stitch abscess, causing long and tedious convalescence.

(6) Natural drainage, preventing peritonitis.

(7) The ease with which other operations upon the cervix and vagina may be done at the same time, which so greatly aid in restoring the patient to health.

The author had a run of twenty cases of oophorectomy without a death.—C. P. Thomas, M. D., in the *Journal of the Amer. Med. Asso.*

ELECTROLYSIS FOR THE SURGICAL TREATMENT OF STRICTURES. By PROF. J. A. FORT, M.D.

It is a well-known fact that electrolysis has been discarded on account of the imperfect instruments which were used. My electrolyser has all the advantages of the urethrotome and none of its inconveniences. This instrument, being first introduced into the stricture, is connected with the negative pole of a continuous current battery, and the positive pole is connected near the affected part, on the front of the thigh or over the pubes: then the current is turned on.

The operation, which is almost painless, requires thirty seconds (on an average), with a current of a strength of at least ten milliamperes, as indicated by means of a galvanometer. The electrolyser remains per-

fectly cool during the operation. In nearly all cases there is no bleeding, or but very little.

Usually the wound resulting from electrolysis heals quickly without any local treatment whatever. When the wound does not heal, I merely prescribe injections morning and evening with one part of hydrozone to twenty parts of water.

This treatment can be used for stricture of the cervical canal, urethra or any narrow sinus.—*N. Y. Medical Journal*, Nov. 16, 1895.

OXALIC ACID AS AN EMMENAGOUGE.

The emmenagogic effects of oxalic acid given in doses amounting to two grammes a day are very marked; but its disagreeable taste is a disadvantage. It may be made more acceptable thus:

Oxalic acid.	2 grammes
Neutral glycerine.	40 "
Syrup aurantii.	60 "
Water.	400 "

One-quarter of a glass every hour.

—Occidental Medical Times.

ENDOMETRITIS.

Winckel (*Wiener med. Woch.*, No. 27, 1895) discussed this disease at the June meeting of the German Gynecological Congress. Simple uterine catarrh usually results from distinct venous congestion. It frequently arises from this cause during infancy from improper clothing, especially tight bandaging of the body. Catarrh may also arise in childhood from want of cleanliness, irritation of the vulva and entrance of worms into the vagina. Anemia and other diseases of the blood cause catarrh in childhood. In adult life the causes of the same disease are innumerable. After bad burns, hemorrhagic endometritis is frequent.

In acute infectious diseases this disease may arise either from entrance of the specific germ into the endometrium or from irritation of that membrane due to chemical products evolved by the germ. Endometritis decidua results from retained relics of decidua after abortion and premature labor. In endometritis exfoliativa there is never any infiltration, as has been asserted. Between the shedding of one membrane and the development of the next there may not be the least trace of any discharge. Tuberculous endometritis is rare, the tube being more commonly the seat of tuberculous disease when it attacks the female genitals. Gonorrheal endometritis is very frequent, and Winckel contends that the gonococcus travels not only along the endometrium to the tubes, but also through the uterine wall to the peritoneum. Recent literature records no instance of true diphtheritic endometritis. The well-known septic puerperal type is chiefly set up by streptococcus pyogenes aureus. Purulent senile endometritis is saprophytic.

PERMANENT RESULTS AFTER ALEXANDER'S OPERATION.

Kuster gives the result of 14 cases treated by Alexander's operation for prolapse and retroflexion of the uterus at periods varying from one to seven years.

In four it was performed for prolapsus and in ten for retroflexion.

In the cases of prolapsus a plastic, vaginal operation was combined. He had in this group one relapse in one year. In the retroflexion he had two relapses, which he attributed to the uterus being somewhat fixed at the time of operation.

In all the cases the hypertrophic metritis rapidly disappeared after

operation. Our author believes that this operation is to be preferred to all others in appropriate cases, as where there are no adhesions and the case is not too chronic.—Octave Pasteau (*Annale De Medicine*, Mai, '95).

ENDOTHELIOMA OF THE OVARY.

Between tumors of an epithelial origin and those derived from the connective tissue elements in many cases the distinction is not very clear. Certain tumors partake of each of those characters without being positively allied to either, some describe a tumor of the ovary which presents two characters, which they designate an endothelioma. They believe that its endothelial elements arise from the blood vessels and lymphatics of the connective tissue. Marchand has studied 12 cases of this type of neoplastic formation in the ovary. These endothelial elements are found in papillomatous cysts of the ovary, and in the broad ligament. When an endothelial tumor of the ovary is a primary formation, it may be recognized by the naked eye. Its volume varies. It is always highly vascular.—*Annales Med.*, Mai 12, '95.

EXTRA-UTERINE PREGNANCY.

At a meeting of the Academie de Medecine, M. Pinard related a case of extra-uterine pregnancy which ended successfully, both for the mother and child, after operation. A woman, age thirty-six, entered the hospital in the ninth month of pregnancy. On examination it was found that the fetus was outside the uterus. Laparotomy was immediately performed by the speaker, and the child extracted from a very vascular cyst; the walls of the cyst were sutured to the abdominal wound, care being taken by the operator to include the

edges of the placenta. The results of the operation were very simple; the elimination of the placenta was effected at the end of a month spontaneously, and on the forty-third day the patient had entirely recovered. The child was doing well.

INFLUENCE OF LAPAROTOMY ON TUBERCULOUS PERITONITIS.

Surgical intervention has profoundly modified the prognosis of tuberculous peritonitis within a comparatively short time. From recent statistics of Roerset (*Archive de Med. Exper. and Journal of the American Medical Association*, May 25, 1895), it seems that of 308 patients operated on, 22.5 per cent. examined one year after the operation were perfectly cured. "We have cases cured for twenty-five years." (Spencer Wells.) The cases were genuine tuberculosis in those of Buzy, Conitzer, et al. The bacillary researches and inoculations were positive. What is the process of cure? Stehgoleff, operating on dogs in Strauss' laboratory, concludes:

1. Tuberculous peritonitis of dogs may be cured by laparotomy alone, and at the beginning of the process twelve to fifteen days after inoculation.

2. Recovery is due to an inflammatory reaction characterized by infiltration of embryonal cells; the phagocytosis is the active development of connective tissue.

3. Curative action seems due to a variety of physical agents — traumatism of the peritoneum, thermic influences, penetration of light and air into the peritoneal cavity.

4. The complete evacuation of the abdominal exudate is not the sole cause of recovery.

5. The dog is an animal somewhat feeble and very susceptible to tuber-

culosis if we use cultures of human tuberculosis. — *University Medical Mag.*

HYSTERECTOMY FOR FIBROIDS.

One of the most decided advances in abdominal surgery has been the revival of the operation of hysterectomy for fibroid disease of the uterus. When we consider the excessive size which the tumors attain, and the emaciation and hæmorrhage to which they give rise, we can imagine how much pain and inconvenience, without any change or relief, was formerly undergone by women still young when suffering from this disease. The danger of the operation, as then practiced, made it impossible to advise any patient to submit to it, and in its place the operation of oophorectomy was recommended. This, however, often failed to produce any diminution in the size of the tumor and consequent discomfort. By the introduction of the intra-peritoneal method of treating the stump, and by the general improvement in the management of abdominal cases, the operation is now one which may be urged on all patients in whom the tumor is increasing in size, since the risk to life of a skillfully performed operation is very slight. Your correspondent has recently operated in two cases successfully by the following method: A full incision is made in the middle line opening the peritoneum; both ovaries are then removed after their pedicles have been tied with stout silk. The uterine arteries are then felt for, and secured by ligatures and passed beneath each, as low down as possible. Two flaps are then cut from the front and back of the tumor, immediately above the cervix, and the whole of the tumor is rapidly removed just above the end of the cervix: the bleeding is usually

quite slight and stops on pressure. The edges of the flaps are then tucked in and united together with fine silk sutures. The rents in the broad ligaments are also united, and the stump dropped back into the pelvis. The cut surface of the uterus drains through the patent cervical canal, and if any bleeding occurs, it will do so into the vagina, and not into the peritoneal cavity. The only trouble from which the patient suffers, after this operation, is the tendency to flatulent distension owing to the change of position of the intestines. This is easily controlled by passing a rectal tube every four or five hours until the bowels act. The patients are allowed to leave their beds between a fortnight and three weeks after the operation, and are quite convalescent at the end of a month. In the old method of hysterectomy, by means of a serrenoel, the wound was not healed for nearly two months, and during the whole of that time there was a danger of septic absorption. — *Calcutta Medical Recorder.*

WHEN AND HOW TO CURETTE THE UTERUS. By CHRISTOPHER MARTIN, M.B.

Indications.

The operation of curetting the uterus is indicated in a number of pelvic disorders which differ widely in their nature and their gravity.

1. Probably the lesion that most frequently demands its performance is chronic endometritis. But great care is required in the proper selection of cases: and this for two reasons. (a) Many cases of endometritis recover completely without any operation. Thus in simple uncomplicated cases we would first try the effects of non-surgical remedies—rest, hot douches, saline aperients.

glycerine and ichthyol tampons, such drugs as bromide of potash, chlorate of potash, hydrastis and virburnum, and the occasional swabbing out of the uterus with iodine or carbolic acid. Should these measures fail, curetting is distinctly indicated, and will, in the great majority of cases, effect a cure. (b) Endometritis is frequently associated with other and much more serious pelvic lesions, which call for a very different line of treatment. Thus endometritis, due to sepsis or gonorrhœa, is often complicated with pelvic cellulitis and peritonitis, with ovaritis, salpingitis, or pyosalpinx. To curette the uterus in the presence of such lesions would be to court disaster. I have seen a slumbering salpingitis converted into a virulent and fatal pyosalpinx by such a proceeding. It may be laid down as an absolute rule that if there be evidence of peritertiary inflammation or disease of the uterine appendages, curetting is contra-indicated.

2. The second great class of cases which call for curetting are those where we have, as the result of the incomplete emptying of the pregnant uterus, the retention within its cavity of pieces of membrane, fragments of placenta, even portions of a putrid fetus. These retained morsels may give rise, on the one hand, to severe uterine hæmorrhage, and on the other to septic absorption. The symptoms are not at all in proportion to the size of the offending fragment. It is remarkable how small a piece of placental tissue—not larger than a hazel nut—will cause frightful and most persistent floodings. On the other hand, I have removed a mass of placenta as large as a man's fist, which had been retained in the uterus for many months, and which only caused an offensive discharge.

In these cases there must be no

delay in operating—no dallying with medicinal remedies. Ergot and hydrastis are useless to relieve the hæmorrhages; antiseptic injections will not stop the offensive discharges; quinine and anti-pyrin will not check the progress of septic absorption. As soon as the presence of the offending fragment is diagnosed it must be removed with the curette. In no class of cases does operative interference yield more brilliant results. The hæmorrhage ceases at once, the offensive discharge disappears, the symptoms of septic intoxication subside, and the patient's health is restored with marvelous rapidity.

But it must be remembered that in the septic cases the prognosis depends to a large extent on the degree of septic absorption. If it be only a sapremia, the removal of the putrid fragment will cure the patient; if it be a septicemia, the outlook is much graver. Curetting will undoubtedly save many cases of puerperal septicemia where the *fons et origo mali* is a mass of necrosing material in the uterus, and where the systemic infection is not profound. But it is obvious that if a pyosalpinx has formed, or there be suppurative peritonitis, curetting will do positive harm. Curetting is not a panacea for puerperal fever; much discrimination is required in the selection of suitable cases. The best results are obtained where the symptoms clearly point to a retained and putrid fragment in the uterus, where the surgeon is called at an early stage of the disease, and where the clinical phenomena are those of septic intoxication rather than of septic infection.

3. There are two diseases of the uterus in which curetting has been advocated as a palliative—viz.: myoma and cancer. It has been recommended in certain cases of myoma

as a means of checking the excessive losses. I cannot too strongly condemn such a proceeding. If the tumor be causing symptoms severe enough to call for interference, then it is better to perform removal of the appendages, myomectomy, or hysterectomy. If the symptoms be so slight as not to call for such severe measures, rest and the usual medicinal remedies will suffice. Curetting, at best would only temporarily relieve the patient, and might do infinite harm by inducing sloughing of the tumor and subsequent septicæmia.

So, also, in the case of cancer, it is questionable if it afford any but the most transient benefit. Even if it temporarily relieve the patient, it is obvious that we cannot by its means remove the whole disease and so cure the patient. I have, it is true, seen striking temporary relief afforded by freely scraping and gouging away the friable rotting diseased surface, and then vigorously searing with Paquelin's cautery the raw tissue exposed. The hæmorrhage and stinking discharge cease for a time, the patient's pain diminishes, she puts on flesh, and frequently buoy herself up with false hopes of cure. But at best the respite is short; and in many cases when the disease again manifests itself it advances with fearful rapidity. When the growth is strictly limited to the cervix or the endometrium, we should offer the patient the more certain hope of cure afforded by vaginal extirpation of the uterus. If the disease be too far advanced for this operation, the less we interfere with it the better.

4. Lastly, curetting is occasionally demanded for diagnostic purposes. Where we suspect that the patient is suffering from early cancer or sarcoma of the uterus we may obtain,

by curetting, fragments of tissue for microscopic examination, and may thus diagnose malignant disease in its early and most remediable stage.

Armamentarium.

The armamentarium for curetting the uterus should include the following: Anæsthetics, antiseptics, Clover's crutch, razor, speculum, vulsellum forceps, a set of uterine dilators, a set of curettes include a "flushing curette," uterine sound, scissors, six Playfair's probes (or some substitute) armed with absorbent wool, Paquelin's cautery or a bottle of iodized phenol, iodoform gauze, sponges or gauze compresses, catheter, douching apparatus. I shall presently refer in detail to the use of these various instruments.

Asepsis.

It is of the utmost importance that everything that comes in contact with the genital tract during the operation must be aseptic. The instruments should be made entirely of metal and should be boiled for fifteen minutes in soda solution (1 per cent.) immediately before each operation. Instead of sponges I use gauze-compresses made of a square of gauze folded into eight thicknesses. These should be sterilized before the operation by boiling or steaming for an hour. They are not quite so absorbent as sponges, but they are cheap, easily prepared and easily sterilized. The same compress should never be used twice; and after the operation all that have been used should be destroyed. For the disinfection of the hands of the surgeon, his assistants and the nurses, I believe in prolonged scrubbing with soap and lysol solution (1 in 100), using a

nail brush and loofah, followed by immersion in corrosive sublimate solution (1 in 1000).

Preparation of the Patient.

The preparation of the patient is important. When we can choose our time the operation is best performed about midway between two menstrual periods. In many cases, however, as when the hæmorrhage is continuous or the symptoms are urgent, we must operate without delay. For twenty-four hours before the operation she must rest in bed. The bowels must be freely opened the day before, and on the morning of the operation an enema should be given to ensure an empty rectum. The vagina should be well doused the evening before, and again on the morning of the operation, with some reliable antiseptic solution — lysol, iodine, or corrosive sublimate. Immediately before the operation the nurse should pass the catheter and empty the patient's bladder.

The patient having been anesthetized, she must be placed in the lithotomy position—and this is most conveniently effected by Clovers' crutch. Even in cleanly women the hair about the genitals is laden with micro-organisms and hence should now be shaved off with a razor. The vulva should be scrubbed with soap and lysol water (1 in 100), care being taken to remove the sebaceous matter that is apt to collect in the various folds.

The vagina should be similarly cleansed and as far as possible rendered aseptic. It should be vigorously wiped out with pads of sterilized gauze, in order to remove as far as possible the thick mucous discharge that besmears it. This mechanical scouring is more effective in

freeing the vagina of germs than is mere douching with antiseptics.

Before commencing the actual operation a final bimanual examination should be made in order to make sure that there is no disease of the appendages and that the uterus is not fixed by perimetrial adhesions.

Insertion of Speculum.

The perineum should be pulled back by some form of speculum. Sims' buck-bill speculum is the form usually employed for this purpose, but it necessitates the employment of an assistant. I can strongly recommend, in place of it, the use of Auvar's speculum. This is heavily weighted with a ball of lead, so that the instrument is self-retaining, and by its own weight pulls back the perineum and posterior vaginal wall. I have found it of great service when I have had to perform curetting without assistance. It can only be used, however, when the patient is in the lithotomy position.

Dilatation of the Cervix.

The next step is to dilate the cervix. This is not always necessary. For instance, in puerperal cases the os is usually widely gaping and the canal patulous. There are numerous methods of effecting dilatation, each of which has its own peculiar drawbacks, though some are much more objectionable than others. Of all methods, that involving the use of tents is the most dangerous. The risk of sepsis, with all its disastrous consequences, is so great that the tents may at once be dismissed from consideration.

Mr. Lawson Tait's method of dilating the cervix by slowly forcing through it a series of conical dilators,

by means of continuous elastic pressure, is highly ingenious. It will, in the great majority of cases, effect its purpose well, and secure full and complete dilatation of the cervix. But, unfortunately, the method has many serious drawbacks. It is tedious, the process occupying from twelve to forty-eight hours. It requires very careful adjustment of the elastic cords in order to direct the dilator in the right direction. Should the uterus be retroflected or anteфлекed the dilator is apt to plough its way in to the muscular tissue of the uterine wall and not dilate the internal os at all. It necessitates frequent attendance and repeated examinations on the part of the medical man. It usually causes the patient much pain, sometimes necessitating the free administration of morphia. But probably the most serious objection to the method is that it is rather apt to be followed by inflammatory mischief in and around the uterus, partly from mechanical irritation, partly from sepsis. I used this method exclusively for over four years, but was compelled reluctantly to abandon it in favor of rapid dilatation by means of Hegar's dilators, or some modification thereof. This latter method is infinitely easier, simpler, and less troublesome for the surgeon: it entails no suffering on the part of the patient, being effected under anesthesia; and I am convinced that it is safer. Whilst the dilatation it effects is not so perfect as that attained by Mr. Tait's method, it is all that is required for the purposes of curetting.

The particular dilators I myself prefer are those introduced by my friend Dr. Hawkins-Ambler, of Liverpool. I have used them extensively for the past ten months, and have found them very satisfactory. They consist of a graduated series of me-

tallic bougies constructed on the principle of the "wedge-shaped" bougies used for dilating the male urethra. Being made of solid steel they are easily rendered aseptic by boiling in soda solution (1 per cent.) for a few minutes. Having a highly-polished surface, they slide in with a minimum of friction. A set of six will be found sufficient for all ordinary purposes, and will easily, rapidly, and safely effect dilatation.

The anterior lip of the cervix should be seized with vulsellum forceps and drawn down to the vulva. If the uterus be so held (by adhesions) that it cannot be pulled down, the operation had better be abandoned. Having ascertained by means of the uterine sound the precise depth of the uterus and the direction of its canal, the surgeon holds the vulsellum firmly in the left hand and with his right slowly passes the smallest-sized dilator (smeared with some antiseptic lubricant) into the uterus. If it meets with no resistance he at once withdraws it and passes the next size. If the cervix grips the dilator and resists its passage, the surgeon must press the instrument very slowly home. Having got it in he should wait a little before withdrawing it. After a longer or shorter pause the grip of the cervix will be found to relax, and then the instrument may be withdrawn and the next size inserted. If this relaxation of the cervix does not occur within a few minutes the instrument should be withdrawn and reinserted.

The limit of safe dilatation varies in different cases. Where the patient has previously had a child it is usually easy to dilate the cervix until it will admit the forefinger. But if the uterus be nulliparous, and particularly if it be infantile, the process of dilatation is more difficult, takes a longer time to effect, and

should not be carried to the same extent. As a rule it is possible to dilate a parous uterus in from ten to fifteen minutes, whilst a nulliparous womb may require half an hour or more. When the most resisting part of the cervix is at the external os it is sometimes necessary to nick it bilaterally with scissors before dilating. The chief objection to the method of rapid dilatation is that if the tissue of the cervix be very resistant, it will not stretch, but tear. If unnecessary violence be employed, the uterus may be perforated or even ruptured by vertical splitting. Such accidents, however, should never occur if reasonable care be taken, and there be no undue force or haste on the part of the surgeon.

A less serious accident is laceration of the cervix, which may occur if its tissue be very soft and vascular, the teeth of the vulsellum tearing out when the dilator meets with resistance. If the degree of dilatation will permit, the forefinger should now be passed into the uterus and its cavity explored.

Application of the Curette.

For nearly all cases the sharp curette will be found preferable to the blunt one, and the best form is a modification of Simon's sharp spoon. It should be made wholly of metal so that it may be sterilized by boiling before each operation. The largest size that will easily pass the cervix should be gently introduced and passed without any force until it impinges on the fundus. Steadying the cervix with the vulsellum, the sharp edge should be pressed firmly against the mucosa and the curette drawn slowly down—scraping off a vertical strip of the whole thickness of the mucous membrane, and exposing the muscular coat.

By a repetition of this maneuver a series of parallel strips are removed until first the anterior, then the posterior, and then the lateral walls are completely denuded. The surgeon must then carefully curette the fundus and the two upper lateral angles leading to the Fallopian tubes.

Cleansing the Uterus.

The flushing curette is a most useful instrument when the uterus contains much debris—as in cases of retained secundines. The handle and stem are tubular, and if the instrument be connected with the tubing of a hydrostatic douch-can, will permit of the passage into the uterus during the act of curetting of a constant stream of weak antiseptic solution, which carries with it, as it escapes through the cervix, all clots and loose fragments of tissue. If the solution be used hot enough it will also check bleeding.

If the flushing curette be not used, the clots and tissue debris should be wiped away by means of probes covered with absorbent wool. The instrument commonly used for this purpose is "Playfair's probe." This consists of a wooden rod capped with metal. It is objectionable, because blood, etc., is apt to lodge between the wood and the metal, or soak into the wood, and be a source of sepsis. Where the probes are made wholly of metal (steel or aluminium), they are not open to this objection, being easily sterilized by boiling or by being heated in a flame. They are, however, somewhat expensive (costing three or four shillings each).

For the last two years I have used wooden skewers ("pheasant skewers") instead of Playfair's probes, and have found them to answer admirably. I buy them from

the poulturers in bundles of a hundred. To prepare them the ends must be roughly rounded off with a penknife and the skewers boiled or steamed for an hour or more to sterilize them. When wanted for use the end should be wetted and the wool rolled on in a thin film. They are so cheap (costing sixpence to one shilling a hundred) that one can afford to destroy, after each operation, all the probes that have been used. No probe is used twice, and in this way the risk of carrying septic infection from one uterus to another is reduced to a minimum. When it is remembered how frequently curetting is performed in septic cases, it will be seen that this risk is no imaginary one.

Application of Caustic.

Having thoroughly washed or wiped out the cavity of the uterus and cleared away all clots and debris, we should apply to the raw surface left some powerful cauterized or disinfecting agent. For a long time I use to sear the interior of the uterus with Paquelin's cautery. The objection to its use is that the caustic effect is not distributed evenly over all the raw surface. The lateral angles and part of the fundus are apt to be missed, whilst the cervix may be so severely burned that sloughs form. At each spot it sears, its germicidal influence is of course intense; but it does not affect all parts equally, the sulci, crevices, and lateral angles escaping. For this reason it is better to swab out the uterus with a caustic liquid such as iodized phenol, applied on a wooden probe armed with absorbent wool. Any excess of the caustic that trickles out of the cervix must be at once removed with absorbent wool or gauze sponges.

Packing the Uterus.

A long narrow strip of iodoform gauze (one inch wide and one yard long) should be ready at hand, and the uterus firmly packed with it, the end being left hanging out of the cervix into the vagina. This gauze packing serves four useful purposes—it soaks up all excess of iodized phenol, it checks bleeding from the denuded surfaces, it protects the raw surface from infection from the vagina, and it ensures the drainage of the uterus. The vagina must be wiped free from clots, etc., and then lightly packed with iodoform gauze. A pad of antiseptic absorbent wool is placed over the vulva and fixed with a T-shaped bandage. The gauze may be removed on the third day, and thereafter the vagina douched night and morning with lysol or iodine water. In all cases the patient must stay in bed for ten days after the operation.

Results.

The immediate risk of the operation is extremely small and the ultimate result excellent, if the operation be skilfully performed, in suitable cases, and due aseptic precautions be taken. Conversely, if the surgeon use unnecessary force or bungle his work, or disregard contra-indications or neglect the rules of surgical cleanliness, the patient runs the gauntlet of such disasters and complications as rupture or perforation of the uterus, laceration of the cervix, pelvic cellulitis, pelvic peritonitis, salpingitis, pyosalpinx, septicaemia and pyemia—truly a formidable list! Not one of these evil sequels ought, however, to occur if the surgeon follow the indications I have laid down in this paper.

THE HISTORY OF VAGINAL HYSTERECTOMY.

Vaginal hysterectomy is now recognized as one of the triumphs of modern surgery. This operation, according to Greig Smith, was performed for prolapse before the Christain era. This operation, brought forward in 1813 by Langenbeck, like almost all noted operations, passed through many vicissitudes. It has been successful in the hands of some and unsuccessful in the hands of others. Langenbeck was very skillful in performing the operation, while many French and German surgeons met with poor results. This brilliant operation fell into disrepute, until fifteen years ago Czerny took it up. The mortality was at first very high, but now it is just as low, so low, in fact, that some surgeons of Europe perform it on diseases other than cancer. Among those prominent in its improvement are Pean, Segmond, Jacobs, Sanger and Landou. I think Jacobs claims to have removed the uterus, tubes and ovaries, per vaginum, in 140 cases, with a death rate of only 14 per cent. The opinions among leading surgeons at the present time seems to be that the entire uterus should be removed and partial operations should be abandoned. By removing the entire organ we get a lower mortality and better results.—*Charlotte Med. Jour.* June, 1895.

VOMITING IN PREGNANCY.

Paint os with cocaine, or give by mouth, combined with antipyrin :

R Chlorhod. cocaine,	1 1-2 gr.
Antipyrin,	16 gr.
Aq. dest.	4 oz.

Sig.—Teaspoonful every half hour until the vomiting ceases.—*Lutaud.*

DRY TONGUE IN DIABETICS, ETC.

R Pilocarpin, nitrat.,	1-3 gr.
Spirit. vini. dilut,	20 minims
Aque,	1 dram

M. Sig.—The tongue is to be moistened with five or six drops of this solution four or five times daily.

GONORRHOEAL CYSTITIS.

R Pyoktanin,	15 gr.
Boiled distilled water,	2 scruples

M. Sig.—Inject morning and evening for ten to fifteen days.—*Lutaud.*

RACHITIS.

R Phosphorus,	0.01
Cod-liver oil.	100.
Saccharin,	5.
Essence of lemon,	2 gr.
Teaspoonful daily.—	<i>Guinon.</i>

ECZEMA OF THE VAGINA.

R Ichthyol ammon.,	1 1-2 to 2 parts
Amyli tritici,	
Zinc. flor.,	aa 12 parts
Vaseline,	25 parts

M. et fit pasta.—*Von Schlen.*

AS A DEODORISER IN CANCER OF THE UTERUS.

R Acid. Salicylic. grs. vj.
Sod. Salicylat. dr. iij.
Tinet. Eucalpt. dr. vj.
Aq. Destill. ad. oz. vj.

S. Two or three tablespoonfuls to a pint of water as an injection.—*London Practitioner.*

AN UNUSUAL AND REMOTE SEQUELA OF OVARIOTOMY. By WALTER FALLS, M.R.C.S.

A woman, aged fifty-two, was admitted into the Jersey General Hospital on April 12, 1894, suffering from a large ovarian cyst. On April, 17, I performed the operation of ovariectomy. The cyst was unilocular and quite free from adhesions. The

pedicle being rather broad, it was transfixed and tied in the usual way with a stout silk ligature and the abdominal wound closed with a few silk sutures, which were removed on the eighth day, the wound having quite healed. The highest temperature recorded was 101.6 degrees F. on the fourth night, after which it was normal. On May 3, the patient got up for the first time, 16 days after the operation; she made an uninterrupted recovery and was discharged from the hospital quite well on May 17, a month after the operation. She continued in perfect health until the end of December last, when she said she first felt pain on micturition, but did not have any medical advice for it. In April she noticed a little blood in the urine. These symptoms, the patient said, continued and gradually became worse until she consulted me on June 30 last. She then had all the symptoms of stone in the bladder, but would not submit to an examination. On July 19, she again consulted me as she was in great pain, and the following day I sounded the bladder and found a calculus approximately one and a half inches long and three-quarters of an inch broad. On July 26, with the assistance of Mr. Bentlif and Mr. Sullivan, I performed the operation of lithotrity. The calculus was phosphatic, and easily crushed. On attempting to withdraw the lithotrite I found it impossible to do so without using undue force, but after some further crushing and manipulation, I was able with more or less difficulty to withdraw the instrument, when between the blades I was astonished to find a thick silk ligature covered with a certain amount of phosphatic deposit, which easily accounted for the difficulty I had just experienced. The bladder was afterwards washed out in the usual way, and all the fragments re-

moved. The patient had no bad symptoms, and in a few days was practically well. On examining the ligature carefully I found that it was undoubtedly that which had been used for tying the pedicle of the ovarian cyst.

Remarks. — It seems difficult to understand how a ligature used in tying the pedicle of an ovarian cyst could ultimately become the nucleus of a vesical calculus in a case in which there was no injury to the bladder during the operation and no difficulties whatever connected with it, the patient continuing in perfect health for about nine months afterward. It is also remarkable how the ligature, which must have set up a certain amount of irritation, and which eventually perforated the bladder, could do so without giving rise to any symptoms until it became lodged in that viscus.—*Lancet*.

TREATMENT OF RETAINED PRODUCTS OF CONCEPTION WITH HEMORRHAGE IN CASES OF MISCARRIAGE. By SEPTIMUS SUNDERLAND.

(1) To attempt, first of all, to remove the retained products by "bimanual and digital manipulation," the left hand pressing down uterus from abdomen, the right forefinger being passed into the uterus. (2) If this is impossible, then to pass the whole hand into the vagina (the patient being perfectly under ether), and proceed as in (1). (3) If this is impossible, then to seize the anterior lip of the uterus firmly with a vulsellum, to pull it down to the vulva—or as far as it will come without using undue traction—the instrument being held by an assistant, and to proceed as in (1). (4) Then, if still impossible, to remove an adherent portion of growth, to resort to the use of

the curette, but even then, to assist removal by the use of the finger, and to feel with the finger that everything has come away after the curetting is completed.

In some cases, where the placenta has been very adherent, I have used a small finger curette, similar to the one used by throat specialists, fitting the finger-nail, which I have fastened around my wrist with silk; any projections or irregularities on the intra-uterine surface can then be felt with the finger-tip, and can be immediately scraped away by the artificial finger-nail.—*Med. Times*.

VAGINAL TAMPONS.

A French contemporary recently advocated the treatment of inflammatory conditions of the pelvis in women by firm plugging of the vagina. The treatment recommended consists of introducing through a large speculum, and packing very firmly against the vaginal vault, wool plugs soaked in glycerine, and each being about the size of a walnut. The theory is that, by this means, prolapsed and tender structures are supported and congestion is relieved by the dialysis set up by the glycerine. The plugs are left in place for several days and the patient can walk about, it is said, and attend to her ordinary duties. The lower part of the vagina, however, according to our contemporary, must not be plugged, or dysuria or retention may occur. We have rarely read of a more unpractical remedy. In the first place it is dangerous, and in the second place it would almost certainly fail in its expected object. In patients suffering from inflammatory diseases of the tubes, in which, for example, a collection of pus in one or other Fallopian canal was bound down and fixed by inflammatory

adhesions, such pressure on the vaginal vault as above proposed might easily cause rupture of the tubes, sudden acute peritonitis and a fatal termination, which would probably, and with considerable justice, be ascribed to the recent manipulations of the practitioner. Then it is needless to point out that the diagnosis in some cases such as these is very difficult, and the treatment might be adopted without the gravity of some tubal affection being recognized. And then the inefficiency of plugs packed up against the vaginal vault should be manifest to anyone with practical experience of such treatment. They would have no base of support, if the vagina is not to be packed throughout, and within five minutes after the patient had risen to her feet, the vaginal vault would of course be left lax and unsupported, owing to the falling of the plugs toward the outlet.—*Medical Times*.

A NEW METHOD OF ABDOMINAL HYSTERECTOMY.

At a meeting of the American Medical Association N. Senn described the technique of a new method of abdominal hysterectomy. The dangers attending hysterectomy, he said, were shock, hæmorrhage, injury to important adjacent organs, and septic infection. The operation now described was intended to remove these dangers. Unnecessary handling of organs and loss of heat were the most active agents in the production of shock. The aim of the operation was to secure access to the myomatous uterus in as short a time and with as little exposure of the organ as possible. After incision, as in the ordinary manner, with ligation of the ovarian arteries, the uterus was brought to the wound. The peritoneum was then incised across the

uterus, and the flap thus matched to the parietal peritoneum. The opposite side was treated in the same manner. This cuff was readily made by means of dissecting forceps and the hand. As soon as the cuff had been sutured to the lower angle of the wound the remainder of the abdominal incision was closed. The tumor or tumors were then extirpated. This part of the operation could be accomplished within a few minutes, and the remainder proceeded with leisurely. The uterus was next amputated at the desired point. If the cervix was affected the entire uterus could be extirpated in the same manner. The uterine arteries were then ligated by an indirect ligature. The arteries need not be isolated, but could be recognized and tied. Amputation was effected by an oblique incision, so made as to form a cone of the uterus and a corresponding depression in the parts left. There was very little hæmorrhage if the arteries were tied on both sides. After removal of the uterus the mucous membrane of the cervical canal is cauterized and the uterus closed by chromicized catgut. Two additional rows of buried sutures were then inserted to close the stump and thus arrest parenchymatous oozing. If hæmorrhage occurred at any time the amputated surface remained in ready access for the next 48 hours. Adhesions need no longer be dreaded, because the emulsion was the same whether the uterus was adherent or free. If the operator used the necessary antiseptic precautions, the only possible source of infection would be the hand or sponges. The wound, two or three inches long, with the stump of the uterus on the floor, was packed with iodoform gauze. Temporary sutures were inserted. In from 24 to 48 hours later the gauze was removed

and the wound closed. At no time was there any tension at the stump. If infection should occur after the operation, it was limited to the wound outside of the peritoneum. The crucial test of an operation was furnished by its results. In 32 or 35 unselected cases treated by this method recovery ensued in all without untoward results.

PERMANENT EFFECT OF HYDRASTININ IN METRORRHAGIA.

Kollmorgen (*Zeit. f. Geburtsh. u. Gynak.*, May 29, 1894) remarks that, while no doubt can remain as to the value of hydrastinin in metrorrhagia, reports are hitherto wanting as to the permanency of the results. He kept 86 patients of the Berlin Gynecological Polyclinic under observation during one and three-quarters to two and one-quarter years after treatment with the drug. The best results were obtained in cases of simple menorrhagia and of hæmorrhage connected with retro-uterine hematocoele, previous abortion, or disease of the appendages. The success was less marked in chronic endometritis, very doubtful in hæmorrhage during pregnancy or due to myoma, and nil in carcinoma.

A NEW METHOD OF EXPLORING THE RECTUM AND SIGMOID FLEXURE.

Dr. Kelley, *Bulletin Johns Hopkins Hospital*, at the meeting of the Hospital Medical Society, said: What I wish to do this evening is not to speak of the principles involved, but to demonstrate my method of examining the lower bowel. I will be able to show you through the rectal speculum further inside the lower intestinal canal than has ever been exhibited before without the intervention of artificial light or mirrors or a glass

diaphragm between the eye and the part to be inspected.

I have for quite a number of years, even while I was in Philadelphia, been in the habit of examining a dilated rectum with the patient in the knee-breast posture, and this is the main feature in a satisfactory examination. So many patients have come to me lately suffering with pelvic inflammatory troubles, pelvic abscesses, etc., associated with stricture of the rectum or with tenesmus and frequent passages containing large quantities of mucus, that I have found it necessary to examine these patients minutely in order to definitely localize the disease of the bowels. For this purpose I have devised instruments which enable me to examine at a glance the whole of the lower part of the rectum, and not only the lower part of the rectum, but also that portion which lies above the ampulla and the sigmoid flexure, beyond the promontory of the sacrum. With the largest speculum I am able to enter the descending colon, and I hope in time to inspect even the transverse colon.

The instruments employed are simple and few in number. Instead of a series of rectal dilators, I find a conical dilator best, varying in size from the point, 2 cm. in diameter, to the base, 6 cm., which is equivalent to a large series. This dilator must be well anointed with vaseline, and then by a boring movement one can dilate the rectum equably, without pain, and much better than is possible by simply pulling with the fingers from tuber ischium to tuber ischium. After using the dilator I take one of these cylindrical specula, made according to the same pattern as my bladder specula. Each speculum is accurately fitted with an obturator, which facilitates its introduction and

prevents any injury to the bowel. With the patient in the knee-breast posture I gently introduce the speculum, letting it take its own course as much as possible. Knowing the general course of the rectum, I am able to guide the instrument safely into its upper third and thence into the sigmoid flexure.

TREATMENT OF PUERPERAL ECLAMPSIA.

Dr. A. Charpentier (*Arch. de Soc. et de Gyn.*) gives a very extensive statistical review of the different methods of treating puerperal eclampsia in the various maternities of Paris and the method known as Duhrssen's. He arraigns the latter in very forcible language, characterizing it as brutal and unjustifiable. He sums up as follows:

1. Every pregnant woman with albuminuria being exposed to eclampsia should be put on an exclusively milk diet. This form of treatment serves as the best prophylactic of eclampsia.

2. Whenever one is called to a case of eclampsia and he finds that the patient is strong and vigorous and very much cyanosed, he should begin by withdrawing from four to five hundred grammes of blood by a venesection and then administer chloral either by mouth or *per rectum* as described in the text.

3. If the woman is delicate and the cyanosis but slight, he should limit himself to the chloral medication.

4. Wait for the labor to come on spontaneously and do not interfere with the natural delivery whenever this course is possible.

5. If labor has set in spontaneously and delivery has not taken place on account of feeble uterine contractions, terminate labor by appli-

cation of forceps or version, if the child be living, or by craniotomy if the child be dead.

6. Delay interference until the maternal parts are in a condition to render interference free from danger to the mother.

7. Reserve *accouchement provoqué* for exceptional cases or when medical treatment has completely failed.

8. Reject absolutely Cæsarean section or *accouchement force* by deep incisions of the cervix, so to speak, "the bloody method."

INFLUENCE OF SEA BATHS ON MENSTRUATION.

M. Houzel stated that most authors are in accord in the opinion that baths are contraindicated during the menstrual period. This opinion may be correct as regards the women of towns, but his personal observation has shown him that the robust and perfectly natural woman is not in a condition bordering on illness during this period. (*Univ. Med. Mag.*). With her menstruation is a purely physiological act, silently accomplished and accomodating itself to the fatigues and vicissitudes which the necessities of life impose upon her. Sea baths, far from deranging, favor menstruation, prolong the period of sexual activity and increase her fruitfulness. He has frequently been surprised to see the fisherwomen, poorly nourished, slightly clad, feet and limbs bare, wade into the sea up to the waist, and sometimes up to the armpits, remaining there for hours. In spring and summer, having filled their nets with shell fish, they come out of the water, and with their wet clothing and the dripping net on their shoulder, traverse the town selling their fish. In the winter they may be seen, in coldest weather, with a heavy basket of mussels on their

backs, from which the icy water constantly drops. Sometimes their clothes are completely frozen during menstruation, yet without causing any ill effects whatever. All this may seem surprising, and may by many be attributed to race and habit, but a study of sea baths and their effect on the uterus easily explains it, and shows that all women, except those with grave lesions of the appendages, might imitate these fisherwomen to great advantage, provided they allow themselves time to receive the benefit of the sea air and to become accustomed to sea baths before going into the water during the menstrual period. Of 123 fisherwomen examined by Dr. Houzel puberty occurred on an average at the age of thirteen years and ten months, and the menopause at forty-nine years and six months—a difference in their favor, as regards the period of fecundity, of three years and seven months over women not going into the sea. According to Raciborski (*Traite de la menstruation*), the average period of sexual life of the Parisian woman is thirty-one years and seven months.

A CASE OF IMPROVED CÆSARIAN SECTION. By H. J. GARRIGUES, A.M., M.D.

The patient was Mrs. M. P., American, eighteen years old, of slender build, but in good health, primipara. The waters broke in the night between November 29th and 30th, 1895. Labor pains began on December 2d, at 6 A.M. I was called in consultation on the 3d, at 11 A.M. The pelvic measurements between the anterior superior spines of the ilium were 21 cms. (8 1-2 ins.), between the crests of the ilium 26 cms. (10 1-4 ins.), Beaudelocque's diameter 16 cms. (6 1-4 in.). The vagina was so nar-

row that I could hardly introduce two fingers. The promontory could not be reached on account of the head being in the way and the vagina being so narrow. The os presented an oval transverse slit 1 in. (2.5 cent.) by one-quarter in. (6 mm.) in size. The pains were weak, the pulse good, the temperature normal. The patient's home being too small, and asepsis being impossible there, I had her removed to St. Mark's Hospital, where she arrived at 4 P. M. Labor pains had ceased. The os was more round, but only 3 cms. (1 1-4 in.) in diameter. A small portion of the occiput was dipping straight down into the pelvis, inside of the cervix. The urine was normal, and the patient in good condition in spite of her thirty-five hours' labor pains and the drive of two and a half miles to the hospital. When she had been etherized, the diagonal conjugate was found to be 4 1-4 in. (10.5 cm.), and the true conjugate computed to measure 3 3-4 in. (9.5 cm.). The fetal heart was hard below and to the left of the umbilicus. Symphyseotomy was not thought advisable on account of the narrowness of the vagina combined with a full-sized head, and the Cæsarian section was performed.

The vagina and the abdomen were disinfected with tinctura saponis viridis and bichloride of mercury (1-2000; all instruments were boiled in a solution of bicarbonate of sodium) a heaping teaspoonful to each quart of water; and coats, caps, towels, gauze pads, and silk were sterilized with moving steam. All participants having disinfected themselves, an incision was made through the abdominal wall in the median line, about 16 cms. (6 1-4 in. long), half above and half below the umbilicus, circumscribing the latter on the left side. This incision was just large enough to allow the uterus to be pulled

through it. It was surrounded by a warm towel, and three silk sutures passed through the upper part of the edges of the wound, one inch apart. When the sutures were tied, they kept the intestine and omentum out of the way. A rubber tube was laid around the broad ligaments outside of the appendages and around the cervix, and tightened below the head of the child.

Next an incision was made in the median line of the anterior wall of the uterus, extending from the fundus downward about 15 cms. (5 3-4 inches), just enough to allow an easy extraction of the child. In order to be sure not to wound the child, this incision was made with many strokes, after each of which the tissue receded to the side, forming a beveled surface about 3 cm. (1 1-4 inches) wide on either side. This incision brought many venous sinuses to view, but only a few bled; these were seized with compression-forceps. When the wall had been cut through at one point, the left index-finger was introduced, and the opening extended to the full length of the incision. The head being low down in the uterus in the left occipitoposterior position, I extracted the child by the legs and body. The cord having been tied, the child was handed to an assistant. It was in good condition and soon cried lustily.

The placenta was inserted on the posterior wall and had to be peeled off with the finger-nails, and was removed, together with the membranes, all in one piece. The endometrium was wiped dry. I passed seven deep silk sutures (braided No. 4) an inch apart, about 1 cm. (1-2 inch) from the edge, taking in the peritoneal and the muscular coat, but avoiding the endometrium. No tenacula having been prepared, the peritoneum was not folded in. After having tied these

deep sutures, superficial sutures of fine silk (braided No. 2) were inserted through the peritoneum alone, one between each two of the deep sutures and above the first and below the last. The superficial sutures, entered 1-2 inch from the edge, were brought out 1-4 inch from the same, re-entered on the opposite side 1-4 inch from the edge, and came 1-2 inch from the edge. There were eight in all, and they folded the peritoneum in between the deep sutures. After passing the sutures the rubber tube around the broad ligaments and cervix was slowly loosened, and the hitherto wax-colored surface of the uterus became again purple, as it was before the incision, but wrinkled and dull. There was very little loss of blood; indeed, there was less than in an average normal delivery. The uterus being somewhat flabby, I had hot water poured over it with good effect. There was no liquor amnii in the uterus, and no blood had got into the peritoneal cavity.

The uterus and appendages were replaced, leaving the intestine and omentum untouched above the fundus. I closed the abdominal wall with eight deep silk sutures, taking in the skin, fascia, aponeuroses, muscles, and peritoneum; they were placed one centimeter (1-2 inch) apart, and two superficial ones were added to make the coaptation perfect. The wound was dusted with iodoform powder, covered with iodoform gauze, gutta percha tissue, sterilized gauze, absorbent cotton, broad plaster straps, and a many-tailed bandage. To this latter was fastened my usual perineal occlusion dressing. The patient was in good condition at the end of the operation, which had lasted fifty-five minutes, and she was placed in a bed with half a dozen bottles containing hot water.

The child, a female, weighed six

and one-half pounds. The diameters of the head measured: occipitontal 12.5 cm. (5 ins.), occipitofrontal 10.5 cm. (4 1-8 ins.) suboccipitobregmatic 8 cm. (3 1-8 ins.), biparietal 9 cm. (3 1-2 ins.), bitemporal 8 cm. (3 1-8 ins.) The circumference around the glabella and small fontanelle was 34 cm. (13 1-2 ins.), that around the base of the occiput and the large fontanelle 30.5 cm. (12 ins.)

The puerperium was entirely normal, except for the rapid pulse, which seems to be found in all these cases, and a deficient development of the mammary glands. The occasional slight rise in temperature was due to constipation, and subsided as soon as the bowels were moved.

On the tenth day the sutures were removed, and there was perfect union. The wound was strengthened with nine strips of adhesive plaster placed across the anterior wall of the abdomen. Otherwise a dressing similar to the first was applied.

At the end of two weeks the scar measured 12 cm. (4 3-4 inches), the fundus uteri was felt at the level of the umbilicus, 13 cm. (5 inches) above the symphysis pubis. The os was found in about normal position, only slightly more forward than normal, 8 cm. (3 1 4 inches) above the rima pudendi. The uterus lay in the median line; it was adherent to the incision in the anterior abdominal wall, long and narrow and shaped like an olive oil bottle, 6 cm. (2 1-2 inches) above the symphysis pubis belonging to the cervix, and 7 cm. (2 3-4 inches) belonging to the body. At the widest part the body appeared to be only 5 cm. (2 inches) in breadth.

The child did well. The mother having very little milk, it was chiefly fed on Horlick's malted milk.

On the 25th the dressing was removed: the patient was out of bed and received many visitors. On the

31st, just 28 days after the operation, she menstruated. On January 4th she left the hospital in excellent condition, the child having gone home a week earlier.—*The Clinical Recorder*. Feb., 1896.

TREATMENT OF PRURITUS VULVÆ.

Pruritus of the vulva is sometimes symptomatic and sometimes idiopathic. In the first case it depends upon some genital affection, and accompanies eruptions of the vulva, or its irritation by the leucorrhœic discharge of vaginitis, of metritis, or of cancer; it occurs also during pregnancy, and in women suffering from diabetes.

But besides these cases, where the pruritus accompanies some trouble in the genital system, there are instances where it is impossible to explain the intolerable itching which the patient experiences.

When the pruritus is symptomatic it is necessary to attack, first, the cause which produces it, whether gynæcological, diabetic or whatever it may be, and to build up the general nutrition. At the same time it is

well to begin a local treatment, which is the same as that used when the disease is idiopathic. This consists of the application of lotions, morning and evening, of very hot water (45° to 50° C.), with the addition either of chloral (one per cent), of coal tar, or of aromatic vinegar. Besides this, any one of the following preparations may be used:

Chlorhydrate of cocaine. . . 1 gram;
Distilled water, 10 grams.
To be applied on a bibulous tampon.
Or.

Menthol, 3 grams;
Olive oil, 1 gram.
Lanoline, 6 grams.
Or.

Bichloride of mercury. . . 2 grams;
Alcohol, 10 grams;
Rose water, 40 grams;
Distilled water, 450 grams.

If these means fail, one may try electrization with either the continued or interrupted current.

As a last resort in these very rebellious cases in which the itching resists all treatment and deprives the patient of rest and sleep, it may become necessary to practice resection of the affected part.

ANNALS

—OF—

GYNÆCOLOGY AND PÆDIATRY.

DEPARTMENT OF PÆDIATRY.

ORIGINAL COMMUNICATIONS.

Report of a Case.

ROBERT W. HASTINGS, M.D.,

Physician to the Tremont Dispensary.

Mamie S., age ten. Family history very good. Father died of acute pneumonia. Child was quite healthy during early years. Four years ago had an obstinate attack of malaria which greatly prostrated her. Every winter she had hard colds. Had an attack of pneumonia one year ago from which she recovered well. For several years has had a slight limp.

For several months she has not been well, but with no very definite complaint. Some weeks ago diarrhœa began. Has had her usual winter cough. Noticed that her lower abdomen swelled and that the veins above her pubes became distended and tender. She had occasional attacks of vomiting.

When I first saw her she was in an

extremely feeble condition. Diarrhœa had ceased and she was rather constipated. For several days she had been persistently vomiting. Vomitus was sour and greenish, but with never anything red or dark in it. Usually she was able to retain water, but nothing else. Several times a day she suffered intense agony with pain in her abdomen, which seemed to start immediately after taking anything into her stomach. She had continued rumbling in her bowels with frequent passage of wind which always gave relief if pain was present. For several days she had had headache and for two days had been confined to her bed. Every afternoon she had a high fever. She slept fairly well but was somewhat delirious. She had no desire for food

in any form. For several hours she had been considered dying.

Physical Examination.

A fairly developed child, face plump but body and limbs much emaciated. Pigeon-breasted. Skin and conjunctivæ pale, but lips fairly red. Pulse regular, full, 140. Tongue—clean, moist. Heart—Normal in size and sounds. Lungs—careful examination showed nothing abnormal in percussion or auscultation. The very thin chest walls made all the breathing puerile, but no satisfactory signs of consolidation could be detected. This was confirmed by Dr. J. H. Woods who had previously cared for the little girl and who had called my attention to her. Abdomen was slightly distended, tympanitic throughout, not tender. No dullness in flanks. No change in percussion note with change of position. Too tense for deep manipulation. Right thigh 9 in. in circumference. Left thigh 10 in. in circumference. Strength of legs equal. No tenderness or ankylosis about hip. No prominence or tender pains along spine.

As the symptoms indicated acute gastric disturbance, she was started on bis. subnit. gr. x. t. i. d. Small amounts of milk, lime water and water, together with Bovinine 3ss, in hot water were given every two or three hours. Pain and vomiting at once ceased. She began to sleep well and to be hungry. Pulse decreased in frequency. Quantity of food was slowly increased. Milk was less

diluted. Toasted cracker and oatmeal gruel were added to the dietary. Meanwhile as she grew stronger her cough troubled her more. For this she was given chloroform water with good results.

Occasionally she had a little pain in her abdomen, but nothing severe and no vomiting. Urine showed: normal, acid, sp. gr. 1010, no albumin, no sugar. Wine of peptone and sod. bicarb. were added to treatment. An attempt was made to increase the size of right leg by rubbing and massage. She began to enjoy strained soup and oyster broth. At the beginning of the second week the veins of lower abdominal wall became more tender and a phlebitis of the left femoral appeared. Later the left popliteal was slightly affected. Left foot, ankle and leg swelled considerably.

Under flaxseed poultices and rest, the pain, tenderness and swelling disappeared in about ten days. Cough again became worse and she raised much sputa, white and frothy, nothing solid.

She had some pain at right apex, where she had formerly pneumonia, and examination showed no dullness, but a few dry râles. Diet was increased by soft boiled eggs, and she was allowed to chew steak, not swallowing the meat. An attempt was made to give syr. hypophos. comp. (Fellows), but the stomach refused so emphatically that it could only be quieted by a return to milk, lime water and bovine with bismuth and soda bicarb. During the fourth week she improved again. Râles at

right apex were much fewer. Cough nearly ceased. The fifth week saw a return of the cough, with coarse, moist and dry râles everywhere in chest. Still she was hungry and was allowed milk toast and jellies. Maltine c. peptones was taken with meals. Dovers powder in gr. ii ss doses was given to secure restful sleep. About this time her face became much emaciated and pallor increased; in the sixth week she had no digestive trouble and seemed to gain a little in strength. (Edema of the left foot and leg became so troublesome that it was banded with domet from toes to thigh with some relief. There was also some œdema of right foot.

During the seventh week she was very bright and happy. Her only difficulty was the tenderness over sacrum and tuber ischii, which was relieved by a little care. She was up in a chair daily; examination of lungs showed very slight but distinct dullness at right apex front, and in right midscapular regions. Many coarse, moist and dry râles in these regions. No well marked bronchophony nor increase in whispered voice sounds. Cough nearly stopped and there was no sputum. Urine showed: normal acid, 1006, faintest possible trace of albumen. Sediment showed nothing abnormal under the microscope. In the eighth week ferrated maltine was given in place of maltine c peptones and tr. digitalis m v in a tonic solution of quinin and nux vomica in small doses. No decrease in œdema or change in urine could be detected. Color improved a little. Her cough, however, grew so bad as to interfere

with her eating. Dovers powder was prescribed and cough was checked so that she had a restful night. Waking in the early A.M. she was apparently refreshed. An hour later she became suddenly delirious and feeble. Lungs were found full of moist and dry râles. Heart sounds not audible. Pulse feeble. Breathing harsh. Respiration very shallow. Stimulation had no effect, and she died quietly. No autopsy was allowed.

Such is the clinical history of a case told in perhaps too much detail. What shall we say of the diagnosis? A simple case of phthisis pulmonales? Possibly. Persistent efforts were made to obtain sputa and settle the question of long involvement.

But in the midst of the poverty in which she lived this was not possible till a day or two before she died, and then the specimen was accidentally spoiled. Was it a tubercular peritonitis affecting chiefly the parietal portions so that pressure was exerted in the iliac veins? The entire absence of ascites and the ease with which digestion was accomplished would seem to indicate that the visical portions were not greatly affected. Was it a case of general miliary tuberculosis with foci in lungs, peritoneum and probably all the other organs? Whatever the diagnosis is, it has emphasized to me two things: First, how slight demonstrable physical cause may exist of any serious and extensive disease. Second, how great a degree of comparative comfort and actual prolongation of life may be gained by a little medicine and persistent watchful care.

REVIEW OF PÆDIATRY.

ATHREPSIA INFANTUM, WITH SOME
POINTS ON INFANT FEEDING. By
LOUIS FISCHER, M.D.

If an infant soon after birth, or perhaps when a few months old, suffers with vomiting or from a diarrhœa, if there are symptoms pointing to a chronic dyspeptic trouble, such as colic and flatulence, or at times constipation, we can safely diagnose our case as gastro-intestinal catarrh.

When this is neglected, it usually passes on into a state of athrepsia. We notice that the infant does not thrive, that it gradually wastes, and unless it is carefully treated, may die of exhaustion and inanition. Other cases with better constitutions linger for months and develop rachitis.

Recovery is therefore impossible, unless treatment is given in the early stages. Parrot was the first who clearly defined this disease, and classified it into three stages.

The first, early symptoms are those of a simple gastro-intestinal catarrh. Secondly, progressive wasting becomes the most prominent symptom. Third, the infant passes into an exhausted condition and cerebral symptoms make their appearance.

In considering breast-fed babies, we always find that they have been either congenitally weak or premature, and very probably the mother's milk has been deficient in quality and quantity. The child may have been fed whenever it cried and in every way badly cared for.

There is usually one symptom, like vomiting, which predominates during the whole course of this disease.

First Stage: The infant suffers

from a simple diarrhœa or looseness of the bowels. The stools, instead of being bright yellow and homogeneous, are liquid, curdy, often of a green color, and contain an excessive quantity of mucus. The abdomen is distended with gas and remains constantly in this condition; the tongue is coated and the patches of a stomatitis appear in the mouth. The infant is restless, constantly whining, and will not sleep at night. The milk being retained, curdles: the tissues become flabby: and wasting commences.

Second Stage: The symptoms are intensified and the characteristic wasting becomes manifest. The stools for the most part are loose and frequent, and consist of undigested food; they are often pale and putty-like, with a peculiar odor. At other times they are of a dark brown, from the presence of altered bile. The infant is most voracious, liquid food does not seem to satisfy it, and by the mistaken kindness of its friends it is fed with some thick food, like soft bread, a diet which has the great advantage in their eyes of keeping it quiet for a longer time than liquid food or diluted milk. At times it can hardly be made to sleep, or only dozes for a short time, unless under the influence of a soothing syrup supplied by its nurse. The mouth becomes the seat of a parasitic stomatitis; the skin is harsh and dry; small boils or a lichenous rash makes its appearance; the buttocks and genitals are raw and excoriated. Its temperature is below normal; the feet and hands are congested; the face has a pallid, earthy tint, and a

sickly lactic acid smell is given out from the body, especially the abdomen. The wasting is extreme, the face being shrivelled, the skin wrinkled and hanging in folds about the thighs and arms.

The third stage brings the child into a moribund state. It is too feeble to cry, becomes heavy and drowsy, taking little notice of anything. Death then ensues, probably preceded by a muscular twitching, strabismus, or general convulsions.

Henoch, in his edition of 1890, page 66, does not like the new term "Athrepsia" introduced by Parrot, but prefers Atrophy. He considers the first symptom that is noticeable to be that the infant's weight does not increase, and he emphasizes the importance of frequent weighing, as often as once a week, so that the determining factor in all our cases would be the weight.

Pfeiffer, in a series of careful observations on the weight of children, finds that the following table holds good:

GAIN WEIGHT.

During 1st month.	13 oz.	8 lbs.	5 oz.
" 2d "	30 "	10 "	4 "
" 3d "	26 "	11 "	8 "
" 4th "	26 "	13 "	9 "
" 5th "	21 "	16 "	3 "
" 7th "	17 "	17 "	8 "
" 8th "	21 "	18 "	10 "
" 9th "	23 "	20 "	1 "
" 10th "	20 "	21 "	8 "
" 11th "	11 "	22 "	" "
" 12th "	7 "	22 "	7 "

Henoch says that at the end of the first month the weight is increased one-third; at the end of the fifth month it is doubled, and at the 12th month it ought to be three times the weight at birth. Weaning, dentition and all other pathological conditions interfere with a proper increase in weight.

By far the greatest number of

cases that we are accustomed to see are hand-fed or bottle-fed children; but a great number of cases present themselves from time to time which have been breast-fed.

Great judgment must be exercised in determining the quality and quantity of the breast milk before resorting to some other mode of feeding, and dispensing with the breast milk. A microscopical examination of the milk should be made, the emulsion of the fat globules should be carefully examined, a small quantity of the milk should be examined by the creamometer to determine the amount of fat that it contains, and we should be positive that we are withdrawing a poor milk by thus giving it a thorough examination.

A great many children will be found to thrive at once after having been removed from the breasts and changed to some artificial mode of feeding, whereas the reverse is also true. If therefore we wish to do away with the own mother's milk for some positive reason, it is advisable to secure a wet nurse having a child as near the age as the one she is to suckle as possible. The hereditary history of a nurse is of great importance, as is also the quantity and quality of her milk, which should be thoroughly examined before she is given this foster child.

The treatment of this disease is one which resolves itself into removing the cause, and if bad hygienic surroundings, as impure air, crowded apartments, and improper diet are the cause, then these must be remedied at once. Medication amount to nothing in the treatment of this disease.

With hand-fed or bottle-fed children we can easily regulate the condition of their bowels and also easily regulate the quality and quantity of the food given them. The blandest

and least irritating food must be selected, while frequent weighing of the infants should be resorted to in order to ascertain the progress that is being made.

Where there is much diarrhœa, milk must be used sparingly or altogether omitted for a while, as the hard curds formed in the stomach are beyond the weak digestive powers of the weakened stomach and intestines.

Small quantities of whey and barley water, white of egg and barley water, or the juice of a rare chop or steak, may be given at short intervals during the day and night.

As soon as the child improves in respect to the diarrhœa, milk in some form may be allowed. Peptonized milk is often of much value in these diseases when made by mixing three ounces of a boiling decoction of arrow-root with three ounces of cold milk, adding two teaspoonfuls of cream, with one-half of a peptonizing powder to sweeten it, and giving it to the infant after it has stood for fifteen minutes.

The cream mixtures are often of much service, such as one ounce of cream, three ounces of barley water, one teaspoonful of sugar. Every care must be taken that the feeding bottle is clean, and the food prepared with the most scrupulous neatness.

The great difference between cows' milk and human milk is the fact that human milk is persistently alkaline, whereas cows' milk is usually acid: that there is more nitrogenous material in cows' milk: that there is less fat in cows' milk: that there is a much smaller percentage of milk sugar in cows' milk; and finally that the nitrogenous constituents of the milk of the cow are affected by rennet in a manner different from those of a mother's milk.

In order therefore to feed cows' milk to infants, these differences must

be corrected, and the correction of them causes further differences, which have in turn also to be corrected; the process, therefore, is a complicated one.

Before considering the means adopted to alter the chemical composition of cows' milk, it would be proper to state that there is a common but false belief that milk from one cow is the best for infants' use. The principle that underlies this belief is perfectly right. It is, that it is desirable to obtain milk of uniform composition, but it has been found experimentally that milk of the same cow varies in its composition during 24 hours, and that it is in reality more likely that a mixture of the milk from several cows will show a more constant analytic result than that from one single animal.

Jacobi and others have stated that chances of infection from tuberculosis through the medium of milk can only be lessened by feeding from a large number of cows.

In order to render the character of cows' milk similar to that of human milk, it is necessary to reduce the amount of casein in cows' milk. This is usually done by treating the milk with water, thus diluting it; but sometimes lime-water is used, for a reason to be stated immediately.

Second, the proportion of fat in cows' milk is less than in human milk, and it has been still further reduced by dilution. Therefore it is necessary to add to it fat in some form or other, and this is commonly done by adding cream.

Thirdly, sugar must be added to cows' milk in order to bring the lactose up to the proper level. It has been held by some that it is necessary to use milk sugar for this purpose, but there seems to be little doubt that cane sugar will serve the purpose quite well, or even better.

In the fourth place, according to Jacobi, it is necessary to prevent as far as possible the great coagulating effect that the ferment of the infants' gastric juice has upon the casein of cows' milk, and this is satisfactorily accomplished by adding an alkali such as lime water or some mucilaginous material, such as barley water. In this way the casein curd is rendered loose and flocculent and more like that of human milk.

Dr. Meigs of Philadelphia advises the preparation of the following mixture: Cream 2 oz.; milk 1 oz.; lime-water 2 oz.; sugar-water 3 oz.; the latter is made by dissolving about 2 1-4 oz. of milk sugar in a pint of water.

The employment of such a mixture as the above gets rid of the difficulties which are connected with the differences in the chemical composition that exists between cows' and human milk: but there remains untouched other and more serious difficulties and dangers. In the first place, an unhealthy condition of the cow may so affect the milk as to render it dangerous as an infant food. She may have been fed upon improper food, as on brewery grains, or she may be subject to tuberculosis. In either case her milk will not be suitable for infants' use.

In the second place, impurities may gain admission to the milk on its way from the cow house to the nursery. For example, milk that is allowed to stand will absorb the odors of the place, and such milk, when given to infants, may cause the general symptoms which are known as those of tyrotoxicoin poisoning.

Again, there seems to be no doubt that milk may act as a carrier of scarlet fever, diphtheria, typhoid fever, and it is easy to understand that if there be in the dairy a person who is desquamating from scarlet fever, the

infective scales may easily pass into the milk which is being sent out for public use.

It is also easy to see how typhoid fever may be carried in milk if the milkman be in the habit of adding to the milk water which has been drawn from the infected source.

In the third place, impurities may enter the milk in the nursery from the use of dirty feeding bottles, and in this way fermentative processes may be set up.

Fortunately sterilization of milk has been found to purify milk which may already contain the organisms of disease and also prevent fermentative changes in the milk which may have been started from some source before being used.

It is not my purpose to go in detail into the method of sterilization as recommended by Soxhlet, which is so well understood today; except to insist on using the bottles with a nipple and leaving all complicated attachments, such as feeding tubes, aside, for they are simply traps for impurities and for germs of disease; besides it is extremely difficult to keep them clean. It is better to feed with a spoon than with a bottle that has a long India rubber tube attached to it.

It may be repeated here that an infant ought to be fed at an interval of two hours, from five in the morning to eleven in the evening, during the first two months of life; that up to the end of the sixth month, two and one-half hours ought to intervene between successive feedings, and that from the sixth month up to the time of weaning, food ought to be given every three hours. The quantity to be taken at each meal must be regulated by what is known as "the stomach capacity" at different ages.

In connection with the feeding of infants one point which calls for a

passing note is important, and that is the necessity of giving to the infant water to drink in addition to that which they receive mixed with the milk. Infants are often thirsty, and milk does not quench their thirst well, and it is therefore necessary to give water in small quantities occasionally—water that has been boiled to be preferred.

Condensed cows' milk is simply cows' milk that has been evaporated to one-fourth of its volume and sterilized, nothing at all being added to it. Then again there is a form in which the milk is not only condensed, but has also the addition made to it of about fifty per cent. of cane sugar. When it is also borne in mind that the composition of condensed milk varies with the season of the year, great fluctuations must occur in its chemical constitution.

Condensed milk must also be diluted with water before it is fit for use, and this dilution may entirely disarrange the proportion of the component parts of the fluid. For this reason it is found that even where infants appear to thrive upon condensed milk, their apparent good health is due to an excessive deposit of fat, and not to a sufficient supply of albuminoids; and they are in the long run more prone to disease than babies fed on the breast, or upon cows' milk properly prepared.

The above remarks apply with less force upon that variety of condensed milk which is made from sterilized fluid and then sweetened, but even this preparation requires for digestibility to be diluted some ten times, and this reduces its nutritive value to a dangerous degree.

At times we must resort to various methods of feeding, until we find the proper method upon which a baby will thrive, and so it is that we have, first, *humanized* milk; second,

sterilized milk; and third, *peptonized* milk.

First, Humanized milk is simply cows' milk diluted with a certain amount of whey and with some cream. It is prepared in the following way: A pint of milk is set aside in a cool place until the cream rises to the surface. This is skimmed off and kept, and to the milk remaining is added enough rennet to curdle it thoroughly. The whey is strained off from the curd and added with the cream, previously separated, to a pint of fresh cows' milk, and the mixture is known as Humanized milk. It is distinctly more digestible than ordinary diluted milk, and often agrees well with young infants, being given without any further dilution, in quantities suitable to the age of the infant. It may be employed exclusively during the first three months of the babies' life, and after that age may be used in combination with some farinaceous food.

Sterilized milk is milk in which all germs tending to decompose have been destroyed by exposure to a boiling heat for a short period of time. Fresh cows' milk always contains impurities received from the atmosphere or from the vessels in which it is contained, though much care may have been taken to maintain absolute cleanliness. The milk is usually exposed to the action of steam or in a boiling heat from 35 to 45 minutes, and will keep about twenty-four hours.

A fresh bottle must always be opened for each meal; if anything is left in the bottle after the baby has finished, it must be thrown out.

Peptonized milk, the third substitute for ordinary diluted milk, is as simple a preparation as sterilized milk. It consists of milk which has previously partially digested by the addition of some preparation of a digestive ferment, among the best

known of which are Benger's Liquor Pancreaticus, Fairchild's Peptonizing Powders, etc. The milk should be diluted to some extent before being peptonized; but it is not necessary to dilute to such an extent as has been recommended for ordinary cows' milk. Generally, even for an infant two or three days old, the addition of an equal quantity of barley water will be sufficient, and when a baby is two or three months old, a dilution of two parts of milk with one part of water will be digested with comfort.

Fairchild's Peptonizing Powders are put up in quantities sufficient to peptonize one pint of milk, so that if one-quarter of a pint is to be prepared, only one-quarter of the powder is to be used. The milk diluted to the extent desired is placed in a bottle and the powder mixed with it. It is then allowed to stand in water as hot as can be borne by the hand for about ten to twenty minutes, when the peptonizing is complete. If a bottle has been finished, it may be given to the baby at once without further preparation.

In order to arrest the further progress of peptonizing it will be necessary to boil the milk thus prepared for about four or five minutes. It may then be left in a cool place for 12 to 24 hours and simply heated by being placed in warm water before given to the child.

If the process of peptonizing be allowed to go on for more than 20 minutes, or if too much peptonizing agents be used, the milk becomes bitter in taste and somewhat curdled, and the infant may dislike it and refuse to take it.

Newly born infants, who are most intolerant to cows' milk, require great care in feeding. It is necessary at first to dilute good cows' milk with two-thirds water, one-twelfth part of added lime-water so as to make the

food faintly alkaline. After the first two or three weeks, if the infant's digestion appears to be good and no curds appear in the stools, one-half milk and one-half water may be given, adding the same proportion of lime-water. From three months of age to six months one-third part of water should be added to two-thirds of milk.

For many years it has been the practice to use certain thin gelatinous fluids, such as barley-water, arrow-root water or fluids containing maltose or dextrine, to dilute milk for infants' food. All the fluids, except perhaps the last-named, contain starch. It is certain that the powers of young infants for converting starch into sugar are feeble, and if these fluids are used, care should be taken in their preparation to prevent any quantity of starch being present.—*Clinical Recorder, Feb., 1896.*

THE DIAGNOSIS OF HIP JOINT DISEASE. By W. R. TOWNSEND, A.M., M.D.

I wish to show today several patients suffering from lesions of the hip, and to dwell particularly upon the diagnosis of hip joint disease. By hip joint disease I mean a chronic osteitis of the head of the femur or acetabulum, or of both, or an arthritis, usually tubercular in character. We might say that nearly every case is tubercular, and that the traumatic theory as the sole cause of the disease is held by but few today. Traumatism does have their effect, but the result of a fall is generally to simply increase the symptoms present, or to cause the appearance of symptoms in one already predisposed to the disease. This is being proven more and more clearly each day, and it serves to draw attention to the well-known fact that histories, unless very care-

fully taken, are not to be too much relied upon in establishing the exact date of origin of any disease. One day last week at the clinic at the Hospital for Ruptured and Crippled one of the staff called my attention to a case of well-marked hip joint disease in which the mother declared positively that the symptoms had come on after a fall from a chair two weeks previous, and that up to that time the child had been perfectly well. Careful cross examination, however, elicited the fact that the acute symptoms, pain, night cry, and extreme deformity had only existed since the fall, but that for the past three or four months the child had been supposed to have "growing pains," had favored one limb and been disinclined to run or walk, whereas before then he had been unusually lively. We must also remember that parents and children are not, as a rule, very close observers, and that falls are very common in childhood, so common, in fact, that were they able alone to cause chronic joint disease, the number of patients in our clinics so affected would be much larger than it is. The examinations of Koenig and others have clearly shown the disease to be due to tuberculosis. Hip joint disease is most commonly found in the first decade of life and very rarely under the age of eighteen months. During the past five years at the Hospital for Ruptured and Crippled 1138 new cases of hip joint disease applied for treatment, and of this number 52 were over 21 years of age, 97 between 14 and 21, and 989 under 14. Of this number 609 were males and 529 females.

The symptoms of the disease come on, as a rule, insidiously, and only by careful and systematic examination can the disease be made out in the early stage. The subdivision into

stages is still adhered to by many writers, the latest book on Orthopedic Surgery, that of Young, speaking of them as, 1st, the stage of localized bone disease, 2nd, the stage of joint involvement, 3rd, the stage of destruction of the capsule and external supuration. Let us now examine this boy and see what symptoms he presents. His age is seven and his family history good. One year ago, without any known cause, he began to favor the right limb. At first but little attention was given to this, but he soon developed a marked limp, without at any time having much pain. He began to cry at night at the end of three or four months, and this symptom lasted for several months and then disappeared. His limb has been in the present position about three months, and this swelling on the outer side of the thigh is of about the same duration. Taking the sound leg, the left, and testing the motions of the hip, we find them free in every direction and perfectly normal. Taking the right leg, we find that it is flexed and that very little if any motion is permissible, the hip is firmly locked and when we attempt motion, muscular spasm and pain occur. From the position of the hip, measurements are difficult to make, but as we can clearly see that the leg is adducted we would expect to find shortening. The thigh and calf are both smaller than those of the left leg. The swelling on the outer side of the thigh is fluctuating in character and extends upwards and joins another swelling above Poupart's ligament. This is simply a continuation of the abscess which is proven by aspirating it (4 oz. of thin yellowish material being removed) and both tumors are made to disappear. His general health is fair, and his temperature, which has only been taken for a week, has ranged from 98 1-2°

in the morning to 100° at night—he has evidently not suffered any serious effects from the abscess. On the right side posteriorly the buttock is flattened and the fold in the nates changed, due both to the atrophy and the position of the limb. A brief review of his symptoms shows that they came on slowly, that he soon began to limp, and this was due to the reflex muscular spasm limiting the motion at the joint, the one symptom you should always look for, and which is generally very easy to detect, as the motions of the affected joint can be compared with the sound limb. Any restriction from the normal should excite suspicion, and when combined with the other symptoms is clear proof of the existence of disease, especially when spasm is present. The next symptom of importance is atrophy, and in this child it is particularly well marked. Besides he has an abscess, not an infrequent complication. About the hip itself there is not much to note; the trochanter is in normal position as compared with Nelaton's line, and there is practically no induration about the joint. The spine is normal, and in these examinations the spine should always be examined, as disease of the lumbar vertebræ is so often mistaken for hip joint disease. This, then, would represent a typical case, and the variations from this are not very great nor often met with. Some cases come on acutely, and progress just as do the cases of so-called "galloping consumption" of the lungs, others suffer no pain during the entire course of the disease, while in others pain is the most marked symptom. In the first stage the most common deformity is flexion, in the second abduction, which gives us a leg apparently longer than its fellow, and this is due to the tilting of the pelvis, so well shown in this little device of Judson's. In the

next stage we have adduction and apparent shortening. Real shortening is rarely excessive, and true dislocation is very rare. The head of the femur may become separated from the neck, either coming out through an abscess or sinus or may remain as a foreign body in the acetabulum and the trochanter thus be above Nelaton's line; these are not cases of true dislocation. The abscesses usually appear on the outer side of the thigh, but may appear in front on the inner side, within the pelvis or posteriorly. Occasionally they enter the pelvis through a perforated acetabulum, or through one of the foramina, but more frequently by burrowing up under Poupart's ligament. The child had night cries and a slight rise in temperature.

Bearing in mind this group of symptoms, let us examine this little girl two years of age. Her parents are healthy. Labor was normal, but four days after birth it was noticed that her right knee was swollen, and a few days later her left thigh. The child became very feverish, the swelling over the thigh increased rapidly and was opened by a surgeon; a sinus was left and discharged for several months. The right knee was also opened, but healed promptly. As soon as the child began to walk her parents noticed she was lame. Examination today shows that the left leg is an inch shorter than the right, both as measured from the anterior superior spine and the umbilicus to the internal malleolus. The motions of the joint are perfect; there is absolutely no limitation in any direction. The trochanter on the left side is above Nelaton's line, on the right side it is normal. The child has had no night cry. There is no atrophy of the thigh. Has this child had hip disease? Evidently not. The early stage of the attack and the symptoms

do not point to such a lesion. What she did have was an acute arthritis of infants—a septic process involving the knee and the hip, resulting in a separation and loss of the head of the femur, which accounts for the shortening and the trochanter being above Nelaton's line. These cases usually occur during the first year of life and leave a flail joint, with more or less loss of length of limb. Ankylosis very rarely if ever occurs. If the abscesses are not promptly evacuated, death ensues. The hip is the joint most frequently affected. The present condition so closely approximates that of a congenital dislocation that we need only remember that in the latter we have no history of abscess, and that as the head of the bone is attached to the neck, although the angle may be changed, we have a limitation of abduction, and these additional signs will give us the differential diagnosis between hip joint disease and congenital dislocation.

The next patient is a girl of seven, of healthy parents. She began to walk lame three years ago, the left leg apparently being affected. She comes from a near-by town, and was referred to me by a friend. At that time I found her in good physical condition, with a marked limp—no pain about the hip, slight pain in the back. Motions of the left leg normal except extension, which was limited. Within the pelvis on that side could be felt a small swelling, deep down—a beginning psoas abscess—the spine showed no deformity but the lower portion was very rigid and the motion decidedly limited. Here then was a case of Pott's disease in which lameness was the first symptom noted. A Taylor brace was applied, and the child did very well until one month ago, when she became more lame, had much pain, and it was found that the

psoas abscess, which had been quiescent for nearly three years, had passed down under Poupart's ligament, through Scarpa's triangle into the outer side of the thigh. I shall aspirate it and hope to have it disappear without having to open it, in the meantime keeping the spine well supported by the Taylor brace.

The next patient is a boy of five, and has double hip disease, and I simply show him to emphasize the fact that very rarely do both joints become affected at the same time. In this case the right hip had apparently recovered when disease of the left developed. Both, however, may be actively diseased at the same time. We will study this boy further at a later date.—*New York Polyclinic.*

TREATMENT OF CONGENITAL CLEFT PALATE BY MECHANISM. By GEORGE A. RAYMOND, D.D.S.

We are apt, I think, as practitioners and investigators, to see things and also do things in quite a different way. It is not my purpose tonight to give you a history or a treatise on the subject of cleft palate, nor to take up this valuable time in telling you what you all know. We are called upon to treat two kinds of cleft palate, viz.: Congenital and acquired. It is my purpose tonight to speak of the former, as the latter has to be dealt with according to the pathological conditions of each case.

For more than seventy-five years men of the highest rank in science and in medicine have given wide attention to the treatment of congenital cleft palate.

We find that the only necessity for interference in a congenital cleft is to remedy defective speech (except as I shall speak of mouth breathing later on). It has been demonstrated from

time to time that any difficulties met with in deglutition would not justify any interference.

Long before adult life, children have learned to accommodate themselves to their condition, and have acquired the habit of swallowing so well that they are caused no embarrassment whatever.

One of the cases which I bring before you tonight is that of a very beautiful little girl who did not know that she was any different from other children until she was eight years old, and then only because other children had told her that she did not talk as they did, and so she went to her mother to find out the truth of the matter. Indeed, it was not until the parents had decided to bring her to me for treatment that they told her of the difference.

Staphylorrhaphy has been practiced by European surgeons as well as by our own American surgeons. As long ago as 1820 it was practiced by our late and very distinguished Dr. Warren.

I fail however, to find a record of a single instance where perfect or normal articulation has ever been obtained. As I was seeking information on this subject, I wrote to Dr. Norman W. Kingsley, of New York City, asking if in all his experience of forty years or more he had ever known a case resulting in perfect articulation. My letter was answered by him while in Germany, saying in reply to my question, that he had heard that there have been cases, but that he had never seen one. Continuing, he says: "I suppose it must be so because some one says that he knew some one who said that he had seen such a case." In conclusion he said: "We cannot deny the existence of such cases any more than we can deny the existence of the sea serpent." You all know the reason for the failures in such

operations, and in later years the German, as well as some of our American, surgeons have changed their procedures and are now dissecting flaps, periosteum and all, and thus, by carrying it back, they not only relieve tension but add length to the velum, as they suppose.

Some very ingenious theories have been advanced and have been put into practice, but the outlook of the matter is that after sufficient time has elapsed they, too, will be given up. I was called upon by a Boston surgeon a few weeks ago, asking me to come to his office and see a child (two years old) on whom he had operated for cleft of both hard and soft palate, including hair-lip. The lip had been closed in infancy, but had torn open, leaving a very bad case. In this operation genius was displayed in a very marked degree, but from my experience of twenty years in dealing with irregularities of the teeth and deformed mouths as affecting one's articulation, I am quite convinced that the child will never talk well.

If perchance, you succeed in getting length to the velum and thus (as you may think) be able to reach back to the posterior wall of the the pharynx, you will find that in most cases the last condition will be worse than the first. Simply because when the child arrives at adult life we find that there has been no commensurate enlargement or broadening of the palate.

I will later show the record of a young man's articulation who was operated on by a very distinguished surgeon, but having failed to receive any benefit in his speech, the velum was afterward cut open, and he is now wearing an appliance, and you will recognize the marked difference in his articulation.

Dr. James L. Little of New York city, in speaking of uranoplasty and staphylorrhaphy, says: "I have

carefully looked into the results and find that although in a large proportion of cases the operations are successful, so far as the closing of the fissure in the hard and soft palate is concerned, yet so little if any benefit is obtained in the improvement of the articulation that I have been forced to the conclusion that they should be discarded as surgical procedures in adults.

What you fail to get by a surgical palate, we can get in all cases by the use of mechanism, and in the natural development of the child we can change the appliance to fit and perform the functions of a natural velum, with the greatest accuracy. I will now show you a model and appliance of a lady twenty-eight years old whom I treated about a year ago. It is worn constantly with perfect ease and in no way is any more trouble than any perfectly fitting set of teeth. While she has had no instruction (which in all cases is very essential, and I will say that I now have associated with me a very able teacher who is doing great things in aiding my patients to overcome their faulty speech) she has, however, made a wonderful improvement in her articulation. I will at the conclusion of this paper show you her speech as recorded on the graphophone. I will also show you that of the little girl, now nine years old, for whom I made the appliance in July (last), who is wearing it night and day, only having it out long enough to clean it. She goes to school and now does everything like other children, and never has any occasion to even think of it, save only as one would be reminded of the necessity of cleaning the teeth.

I expect in a short time to have the child talking perfectly.

You all know the evils of mouth breathing; and while this child was a mouth-breather, she is now very

rapidly overcoming the habit. Her father tells me that when he goes in and looks at her in her sleep he always finds her mouth closed. I always give very careful instructions pertaining in this matter.

By using such an appliance at so early an age the muscles of the face are prevented from getting into the unnatural condition, so that the face will in no way lead one to suspect deformity such as we *can* recognize so easily in many cases, especially in adults.

I shall hope at some future time to be able to bring you a patient that you may see for yourselves. Thanking you for the very kind attention you have given me, I will conclude my address to you by showing you the records of the different articulations referred to.

It may not be possible for you all to get near enough to hear perfectly, but if all who can will come very near to the machine, I will, by repeating the same, be able to give you an opportunity to hear.—*Journal of Medicine and Science*, Feb., 1896.

A RARE SYPHILITIC INFECTION.

By WILLIAM S. GOTTHEIL, M.D.

The chancre, or as it is better called, the "sclerosis," that marks the point of entrance into the system of the micro-organism that causes the chronic exanthematous disease known as syphilis, is still looked upon as a venereal lesion and as necessarily connected with the sexual act. Julien's statistics are less one-sided than those of some other observers; yet even he puts the proportion of extragenital and non-venereal initial lesions at six per cent. Sclerosis not acquired in venery have lately been described as "Syphilis Insontium;" and Fournier claims that 25 per cent. of all cases that occur in females come

under this head. My own observations would show this to be an understatement rather than an exaggeration of the proportion. The case described and figured here is an example of a rare localization of the primary sore; and it certainly deserves to be classed as a case of "Syphilis of the Innocent."

A. S., aged seventeen months, was brought into my clinic on October 1, with the following history:

At about the beginning of July, some three months ago, a sore appeared without any known cause at the side of the nail of his left forefinger. As it resisted the ordinary household remedies, and increased slowly in size, the child was taken to the dispensary in the first week in July, where a physician cauterised the sore, and prescribed an ointment. By the beginning of August spots had come out upon his body, limbs, face and hands. The finger got no better. The child ran down; it became pale and sickly, "went back on its food." The case was then referred from the surgical to the paediatric department, and finally came to me.

Examination showed a pale and anæmic boy, with yellow skin and soft flabby muscles. His entire body, including his face and head, was covered with a closely-sown eruption consisting of quite large pink papules, in some places topped with a moderate quantity of silver scales. The palms and soles were markedly affected, and here the scales were thicker and semi-detached at the margins of the papules. Around the anus was a circle of moist papules. A general indolent adenopathy was present. The visible mucosæ were normal; there was no alopecia.

On the baby's left forefinger was the sore for which the mother first brought him to the institution. The nail was apparently entirely gone, and

its place was occupied by a fungating mass of tissue which occupied the entire dorsal surface of the distal phalanx. This fungous mass was apparently composed of hypertrophic granulation tissues; and the edges of the skin around it were reddened and indurated. The entire phalanx was as large again as it should be, and the child sought to protect it from injury by holding it with his other hand in a very characteristic manner.

We were evidently dealing with a case of acquired syphilis in its early stages. The initial sclerosis was still present on the forefinger, though evidently retrogressing. It had been present at least twelve weeks, and we know that syphilis resembles its first cousins, the acute exanthemata, in that it goes through its various stages in an orderly manner and with a definite rate of progression, whether treated or not. The specific induration was almost gone, and the loss of tissue caused by the breaking down or interstitial absorption of the syphilitic granuloma was being repaired with granulation tissue.

The general papulo-squamous syphiloderm was florid and at its height, as was proper at this time. On the hands and the face, where soap and water are more freely used, we have the papules alone; over the rest of the body the scales were present in varying though moderate quantity. The marked general adenopathy only confirmed the visual diagnosis.

Apart from the interest that a case of acquired syphilis in a child so young as this one naturally possesses, the question as to the mode of origin of the sclerosis at once presents itself to us. How and where could an infant so young as this acquire a digital chancre? Whilst I cannot answer this question with absolute certainty, I am satisfied that it derived it from the mother.

The child slept with its mother; and sleeping with its mother in the tenement house from which this patient came means a community of soap, towels, bed-linen, and dirt, which renders the infection of the child, if the mother has the disease, almost a matter of necessity. The mother admitted that she had sores around the anus in January, which lasted until August, a month after the child's finger began to get sore. She was sick all over her body at the time; but she denied any general eruption or secondary symptoms. She noticed herself that during the time that she was sick her baby lost its power to play and to walk, and ran right down; for she was suckling it, as these people do, until the last possible moment, so as to avoid another pregnancy. But a most careful examination failed to reveal any evidences of present syphilis in her. Her husband, of course, refused to be examined; there is never anything the matter with the husbands!

The subsequent history of the case presents no points of special interest. The baby was given regular mercurial inunctions, the white precipitate ointment being employed for the anal papules. There was steady improvement: the sclerosis slowly retrogressed and began to heal; the eruption faded; the child began to play and to walk again. On November 5, I noted: Papular eruption hardly visible; finger nearly normal in size, ulceration small. The child being still pale and languid, the syrup of the iodide of iron in 5 drop doses three times daily was ordered, the inunctions being still kept up. By November 19th the sore on the finger had entirely cicatrized; the nail-bed was, however, entirely destroyed, and a rough and thickened scar had taken its place. On March 11, of the following year, when I last saw the child, it looked fat and healthy with clear complexion and firm muscles. —*The Clinical Recorder*, Feb., 1896.

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ORIGINAL COMMUNICATIONS.

On the Late Results Obtained from Conservative Operations on the Ovaries, with a Report of Twenty-two Cases.

R. DONNET, M. D.,

Ex-Intern of the Hospitals of Paris.

In a paper read before the Academy of Medicine on February 21, 1893, my esteemed teacher, Dr. Pozzi, related a new treatment for sclero-cystic and diffuse ovaritis. This treatment, which had for end the cure, at the same time preserving the fecundity of the patient, consists in a partial resection and ignipuncture of the ovary.

Before Pozzi, Schroeder had practised partial resection for a demoid cyst in 1884; Martin, Zweifel, Gusserow and Wildow had also performed this operation for various lesions. But Pozzi is certainly the first to apply ignipuncture as a general method in the treatment of diffuse or sclero-cystic ovaritis. He has also considerably simplified the technique by substituting puncture with

the thermocautery for excision of a part of the ovary when this is not absolutely necessary. Pozzi has also demonstrated the great advantage of cauterizing the raw surface and afterwards suturing with catgut; and lastly, he has given the indications and the technique of complimentary salpingorrhaphy.

Consequently the name of Dr. Pozzi should be connected with the ignipuncture of the ovary. The results published in the paper of Pozzi, above related to, were very encouraging, but at that time were too recent to be absolutely convincing. However, time has gone by, and the cases that were recent have become old, while still more operations have furnished new successes.

Today their number is, we think,

sufficient to convince surgeons and to confirm the hope that our master had in the first place entertained.

In this paper I shall only report part of the cases operated on by Pozzi. He has done about sixty. We have eliminated all the cases which have been operated on within the last six months, because we believe that at least this lapse of time is necessary in order to be able to judge of the definitive results.

All the former patients operated on by this method were called back to the Broca Hospital in order to examine them, and we were also careful to question them on all the points that appeared to us necessary. A certain number of the patients did not return, and consequently, in spite of our efforts, it is impossible for us to have any clue as to their present health.

Of the patients that did not give us news of themselves after leaving the hospital I shall say nothing, although I may say that some of them had remained in the hospital more than a month and left completely cured.

The cases that I report in this paper are only those that returned to the hospital for examination and in whom the result of the operation was exactly known.

It may be said that among the patients who did not come back, there may be a considerable number in whom no benefit could be discovered. We admit this, and we can say that those that we have seen were certainly satisfactory.

With what we have been able to

find out and carefully examine, we hope to easily demonstrate that ignipuncture and partial resection of the ovaries are two treatments of choice for diffuse and sclero-cystic ovaritis, with or without adhesions, *but without any disease of the tubes.*

I shall say nothing of the pathological anatomy or of the technique of the operation; I shall only mention some of the modifications in the technique of ignipuncture which have been introduced since 1893. In his first operations, Pozzi practised partial resection after Schroeder's method.

Since then he has adopted a technique which appears to me more favorable and more rapid; it is only applied in diffuse ovaritis. In other words, Pozzi has substituted the thermocautery for the knife and performs ignipuncture instead of resection.

Chronic ovaritis may be classed under three heads: (1st), sclero-micro-cystic ovaritis; (2nd), diffuse or œdematous ovaritis; (3rd), megalo-cystic ovaritis with follicular cysts, or cysts of the corpus leuteum of considerable size.

Each one of these lesions has a different treatment. If it be a sclero-micro-cystic ovaritis characterized by small ovaries with a lumpy surface, in certain places irregular folds, in others, filled with small cysts, all these cysts should be burst open with a platinum point, and the internal surface cauterized well for two seconds. This treatment attacks the entire lesion better than when resection is done.

For diffuse ovaritis ignipuncture is also to be employed, but the cauterization should be deep. And lastly, in the megalocystic ovaritis special treatment is to be employed. The large follicular cysts should be emptied, and their internal aspect cauterized. If you are dealing with a cyst of the corpus luteum lined by a sort of dead pulp, these should be removed by scraping with scissors before cauterization. As the traumatic surface which is left is quite large, and might cause an oozing of blood, the little wound is quickly united by catgut, and by this simple measure hemorrhage which follows the section of the vessels near the hilum is easily controlled.

I will now consider the symptoms which justify the operation. Conservative operations on the ovaries have been performed in two very different circumstances.

Laparotomy has been performed for a gross lesion of the ovary such as a cyst or a tubo-ovaritis. It is on the occasion of this interference that a sclerocyst ovary has been found.

In the first case, the gross lesion removed, there remained the diseased ovary, but insufficiently so for sacrificing it; all the more so, because the women, being young, it was of great importance to preserve their fecundity.

The diseased organ, instead of being removed, was resected in part, and as I have already said, Pozzi is very well satisfied with this way of doing.

In the second case the ovaritis constituted all the lesion; this is the case with the greatest number of our

patients, and it is also the principal side of the question,—that on which I shall insist.

The foremost symptom of chronic ovaritis is pain. These pains, variable in intensity, were more often very accentuated to such a point that some of the patients were doubled up, and could not walk without the most fearful suffering; they transformed the patients into useless beings incapable of doing any work.

Sometimes the pains are less severe but are an inconvenience so persistent that the patient accepts any operation offered for their relief.

The pains become much better by rest in bed, but return after the slightest fatigue in the form of neuralgic attacks. They may last for years and remain so for as many as seven, eight, or even more. Intermittent or continued, they increase at the time of the menses. Their location is constant; it is in the iliac fossa, more often in the left and frequently in both; they shoot down the lumbar region, rarely into the thighs. The characteristic feature of these pains is their long duration and their intensity, which is sometimes terrible. The patients are young women usually of about twenty to twenty-five; most of them have one or several children, while others have only had miscarriages.

These very severe pains of chronic ovaritis are also accompanied by menstrual troubles. The menses are often painful, the pain most often precedes several days the appearance of the blood, and disappears when the

flow is established. Menstruation may be irregular, either too early or delayed. The quantity of blood lost is often increased, either because the menses last longer or because the quantity of blood lost in the ordinary time is excessive. It is not infrequent to meet with menorrhagia or even metrorrhagia, which may prolong one menstruation up to the time of the next.

The physical signs corresponding to this clinical picture are variable. Sometimes the pain produced by examination is so acute that it is impossible to come to any conclusion, and chloroform should be given. If the examination is possible it will be found that the lateral culs-de-sac are not as supple as they ought to be and are very painful, but no appreciable tumor can be detected with the finger.

Usually one or both ovaries may be felt: these ovaries are painful on pressure, they may be hypertrophied, of normal size or smaller than normal. They are supple if it is a case of diffused ovaritis: they are hard and covered with bosses if it be a case of sclero-cystic ovaritis. With an intelligent finger some small but interesting details may be felt. It is thus that I have seen Dr. Pozzi make out, by vaginal examination, large cysts of the corpus leutenum or the multiple bosses of a cystic ovary.

Quite often the ovaries are prolapsed in the posterior cul-de-sac, and instead of being movable, they are very adherent to the vaginal walls or the uterus.

It happens in this case that the surgeon may believe that there is a more serious lesion, such as a tubo-ovaritis; the tube can rarely be palpated.

Nevertheless, it must be admitted that often the physical examinations only give us very vague ideas as to the condition of the organs. The woman suffers, loses blood, the uterus is examined, and a cervix slightly enlarged is found, while an opaque tenacious liquid comes away from the corpus, and the case is considered a simple metritis. Curettement is performed and gives no result. In presence of the persistence of the pains and the uselessness of medical treatment, laparotomy is decided upon.

Such is chronic ovaritis without complications, and all the troubles observed appear to be in relation to a pelvic varicocele, which is the case in ovaritis. The various lesions which nearly always accompany a false metritis due to congestive troubles, can also be complicated by true uterine lesion, such as chronic metritis with a large cervix covered with granulations, with ectropion of the lips, with fungous endometrium, and consequently it is easily seen how the clinical picture may be complicated by these troubles of different importance.

The surgeon should know how to unravel out these various lesions, and not attribute the symptoms which are caused by a chronic ovaritis to a simple metritis or a lesion of the uterus, for if he does not, his treatment will certainly fail.

To sum up, let us say, young women for whom bilateral castration is very disagreeable, sometimes suffer for a long time with abdominal pains and menstrual troubles, presenting signs more or less of simple chronic ovaritis, or associated with some slight uterine lesion, which is curable by minor gynaecological operations; such are the patients in which ignipuncture and partial resection have been applied.

I now come to the consideration of my cases. The oldest one of the cases dates back to July, 1891, that is to say, at the time of writing, three years and five months. The patient who had been troubled by pains for five years, and which had become insupportable during the last year, was only twenty-three years old. She had tried all medical treatment without success, and she came to the hospital to be cured, no matter what operation might be advised.

Dr. Pozzi examined her, and only found some slight lesion; on the left, a large ovary with small para-ovarian cyst; on the right, a rather small ovary; the uterus was anteflexed.

For such small lesions, was it necessary to perform castration and condemn a young woman of twenty-three years to sterility? But on account of the repeated entreaties of the patient, some operation had to be done. Laparotomy was performed in July, 1891, and showed that the left ovary was completely degenerated, and ought to be removed. The right ovary also presented very advanced

lesions of micro-cystic sclerosis; however, on looking more carefully, it was noticed that a small portion of the organ appeared healthy, and as Dr. Pozzi was very anxious to prevent this woman from becoming sterile, he performed resection of this ovary by the technique already described, and preserved a small stump of the organ. The tube was permeable, but adherent; it was dissected out, and its pavillion was united to the small remaining portion of the ovary. A salpingonaphy, as it is called by Pozzi, was then performed. This operation was crowned by success; the patient, who has been seen several times since, has never had any pain either during or in the interval of the menses, which are regular.

The patient was seen in November, 1894, three years after her operation, and was still in best of health; she says that her health has never been better.

This patient is the only one operated on in 1891, that we have been able to see recently. In a thesis by Delaunay, there is to be found the history of a patient operated on in April, 1891. This woman was twenty-six years old and had suffered for three years; the pains in the abdomen were exaggerated at the time of the menses to such an extent that the patient was obliged to remain in bed. The left ovary, which was riddled with cysts, was removed; the right ovary was partly in a pathological condition, and was resected. This patient was seen eight months after

the operation, and it was found that she suffered no longer and that her menses were normal.

Three patients operated on in 1892 have been seen. Two of these cases (cases 2 and 3) suffered for several years following their labors. Both of them had leucorrhœa and painful menses. One of them had real menorrhagia, which lasted from seven to twelve days.

The lesions found by examination were very slight, but could be made out: large, painful and adherent ovaries could be palpated. In one of these women the uterus appeared diseased: the cervix was large, soft and granular.

Upon operating, however, advanced lesions were found in the ovaries, and both patients underwent unilateral castration. However, the right ovary of the first patient, although much diseased, presented a small portion of healthy tissue, which was preserved. The ovary of the second patient was completely filled with small cysts; all these cysts were opened and cauterized with the thermocautery. Both of these—laparotomy, partial resection in the first case, ignipuncture in the second—gave remarkable results. The patients were seen several times, and the last time was two years and eight months for the first, and two years for the second case after the operation, and they both told us that they have never suffered since; they attend to their work without being tired and have their menses regularly and without pain. They have never had any of the troubles which occur

after the bilateral castration, such as flushing, loss of memory, etc.

The next patient (case 4), who was twenty-nine years old, was afflicted with troubles similar to the first two, but beside the ovarian lesion which was diagnosed by palpation, there was also a retroflexion of the uterus. The ovaries of this patient were cauterized in the usual manner, and the uterus was sutured to the anterior abdominal wall. The immediate result was not encouraging; the patient continued to suffer for several months: then she became pregnant and was delivered at term in Sept., 1894. Since her confinement the patient no longer suffers and her menses are normal.

This case of pregnancy occurring after ignipuncture of the ovary is not the only one that I have to mention; but on account of the importance of this case, I shall not insist for the present, but will speak of this later on, giving more details.

Regarding the patients whose cases are numbered two and four, I should like to remark that these women continued to suffer for several months after the operation. Of the patients which were operated on during 1894, I have several times remarked this: the pains were in general less sharp than before the operation, but still remained quite intense. Sometimes this might lead one to suppose that the operation was not a success, but little by little the pains disappeared, the menses became regular, and a cure was brought about insensibly. In case two, who was seen in 1893, the

pains persisted for five months: these pains were especially seated on the right side, in other words, on the side on which resection of the ovary was performed.

This patient was then obliged to stay at the Hotel Dieu, but no other operation was performed. She was seen in November by a former Intern of the service, and it was noted that she no longer suffered: her menstruation was regular and there was no loss of blood, as had been observed once about two months after the operation. I mention this fact in order to warn the profession against a too rapid conclusion that might be made against ignipuncture or partial resection, a judgment which in the cases that I have narrated might make one believe that the operation was unsuccessful, when, on the contrary, the success was complete.

Of the seven patients operated on in 1893, and whom we have seen recently, five have no pain; the two others still have pain, but very much attenuated, and their general condition is very much better. And lastly, of these seven patients, three have become pregnant, and two have had normal labors, while three had miscarried.

Case five was a woman of twenty-four, who suffered from very acute abdominal pains and was the subject of a diffuse ovaritis. This patient had already undergone enuretment and Schröder's amputation, which had given no result. On account of the persistent pains, Pozzi performed a double deep ignipuncture. The

patient got well without any accident and her health was not long in becoming completely established. In Dec., 1893, that is to say, eight months and a half after the operation, she became pregnant. At the same time the patient contracted gonorrhœa and miscarried: the adnexa became diseased and a bilateral castration of the ovaries became necessary.

Case six: only one ovary could be preserved and it was also resected in a large part. Nevertheless, this woman, who had suffered for four years and whose menstruation was still abnormal, regained a perfect health, became pregnant and had a normal labor: the cure was perfect after the latter event.

In another patient (case seven) who was operated on in town by Dr. Pozzi, there was a large cyst of the left ovary already undergoing putrefaction, which was the indication for operating. The left adnexa were included in the pedicle and removed, and then it was found that the right ovary was enlarged, of a whitish color, the surface was smooth and the tissue was filled with small cysts. These cysts were ruptured with the thermocautery, and a large follicular cyst was resected with part of the ovary; the borders of the remaining part were sutured with catgut.

This woman was seen in July, 1894. She then told us that she suffered in no way, that her menses appeared at regular intervals, they were no longer painful, and the quantity of blood was normal. This cure dates back a year.

Another patient (case eight) had suffered for eight years; the pains were so severe that twice she had been in the hospital for them. Medical treatment had been applied, as well as a dilatation of the uterus with applications of tincture of iodine.

As none of these treatments gave her any relief, Dr. Pozzi interfered by a laparotomy. The ovaries were found in a condition of diffuse ovaritis, but the tubes were healthy. A few deep ignipunctures were made in the ovarian tissue. The patient was cured, so that after three months she became pregnant and had a normal labor at term. We saw this woman in November, 1894. The patient no longer suffers from pain and her general health is excellent.

The history which now will be related is more complex (case nine). The patient was operated on for the first time by Dr. Picque, and had a bilateral lesion of the adnexa. The left adnexa were very much diseased and were removed, while the right, being less so, were left in place without any treatment. A short time afterwards the patient presented symptoms of acute perimetritis, which was attributed to an infection of the pedicle of the ovary which had been removed. A second laparotomy was decided upon, and on the left side a mass was found forming a sort of cap on the uterus and adhered very strongly to it; this cap was formed by intestinal coils, which were agglutinated together. On the right there was a sclero-cystic ovary. After the tube had been examined and found

in good condition, a large follicular cyst was resected and four small cysts were broken open with the thermocautery. We saw this patient in November, 1895, and it was found that she no longer had any pain, and when we asked her if she was satisfied with the result of the operation, she replied that the pains from which she suffered were insignificant and she in no way regretted the interference.

Case ten suffered for eight years after her first labor, and the pains had become so intense during the last three years that she was in a most unfortunate nervous condition. The left ovary contained a serous cyst the size of a large walnut. This cyst was resected, and two smaller ones were punctured with the thermocautery; the right ovary was healthy. The patient, who had had such severe pains for such slight lesions, was not long in becoming completely well. We heard from her on March 9, 1894, at which time her menses were regular, and she no longer suffered, excepting perhaps for a little vague pain on the left side.

The history of the last patient (case eleven) is still more complicated. She was a woman who was very exalted, very impressionable, but was not an hysteric, and who had had for a short time some abdominal pains which were not distinctly localized, and were particularly felt in the iliac fossæ and in the region of the kidneys. The menses were very painful and profuse. Physical examination showed a tumor the size of a foetal head, and appeared to be seat-

ed in the left ligament. The cyst and the corresponding adnexa were removed. The right ovary was found in a condition of micro-cystic degeneration, while the tube was healthy; the ovary was canterized with the thermocautery. The patient remained for several months without suffering, and then the pains appeared. She then consulted Dr. Pozzi, who diagnosed an enteroptosis and advised her wearing a Glenard binder. This binder produced a good effect. She was seen on November 25, 1894, and the suffering which had been complained of in the right side was now felt on the left, and the right kidney was found to be floating.

Gynæcological examination showed a normal cul-de-sac on the left; on the right the ovary was found slightly enlarged and not very painful on pressure. We found ourselves here in presence of a semi-success, because the patient said distinctly that she was very much relieved by the operation; it must, however, be admitted that it is difficult to distinguish how much of the pain was produced by the diseased ovary, or how much was due to the enteroptosis.

The analysis of the following cases, numbering in all ten, are more recent; they date from 1894, but six months at least has elapsed since the operation was performed. Of these ten cases there are seven successes and three unsuccessful results.

The first of these patients (case twelve) suffered for four years on both sides of the abdomen; the menses were very painful and very

profuse. The patient had had twice a metrorrhagia for which she had undergone two curettements. After the second the loss of blood was stopped, but the pains increased to such an extent that the patient was incapable of any work, and entered the hospital in January, 1894. The left ovary was very small and adherent, and was punctured in four places with the thermocautery; on the contrary, the right ovary was large, soft, œdematous and contained a cyst the size of a bean. This cyst was resected, and a number of punctures were made in the tissues of the organ.

The patient was seen in November, 1894, and it was found that she no longer suffered, and that her menses were normal. However, there was still some slight pain, sometimes on the right, sometimes on the left, and came on after the patient was tired, but she told us that they were so slight that they were hardly worth mentioning.

The second patient (case thirteen) had suffered for four years from very severe pains, which obliged her to remain in bed. Laparotomy was performed for a cyst of the left ovary (ablation of the left adnexa); her right ovary was twice the size of a normal one and its surface was covered with bosses. The external portion, which was degenerated, was resected, while the remaining portion was riddled with fifteen ignipunctures. This patient was seen on Nov. 25, 1894, at which time she no longer suffered and her menses were normal.

The patient whose case is number fourteen had, besides a chronic ovaritis, which was characterized by sharp pains and menstrual troubles, also an infected uterus. Ignipuncture of the ovaries caused the pain to disappear, but nevertheless there still remained some slight pains, which I believe are due to the metritis. The examination made on Nov. 25, 1894, showed that the uterus was enlarged with hypertrophy and granulations of the cervix, and I do not doubt that an amputation will cause these slight pains to entirely disappear. However, the patient refused this operation, saying that she suffered too little to undergo a second interference.

The cases which I will now relate present nothing special that has not already been mentioned in this paper: consequently I will only mention the result of the operation, as a detailed account of these cases will be found at the end of the paper.

Case fifteen. Removal of one ovary: partial resection and ignipuncture of the other. Seen in Nov., 1894; was found completely cured, with normal menses.

Case sixteen. Ignipuncture of both ovaries. Cured. Still some slight pains, but the patient says she is greatly relieved.

Case seventeen. Ignipuncture of both ovaries: cured.

Case eighteen. Ignipuncture of both ovaries. Cured. There still remains chronic metritis, and the patient is about to undergo Schroeder's operation.

Case nineteen. Double ignipunc-

ture. Amelioration. There still remains some pain, especially on the right side. Menses are still painful.

After this long series of positive results, there still remains three cases for me to record in which the treatment completely failed. The women continued to suffer as before the operation, and another interference was necessary.

The first of these unsuccessful cases is number twenty, a woman of thirty-four years, who suffered after having had two miscarriages. This patient, whose pains were extremely acute, had undergone curettement, which gave no relief. Both ovaries were markedly degenerated. Partial resection and a few punctures with the cautery was performed.

This patient continued to suffer; and the pains only stopped after a second operation, which was double castration.

Case twenty-one also received no benefit from the operation. She had two large ovaries filled with small cysts, which were treated by ignipuncture.

The third unsuccessful case (case twenty-two) was a young woman, nineteen years old, who had severe pains on both sides of the abdomen. For more than six months the patient flowed continuously. Three consecutive curettements had no effect. By examination, the uterus was found normal both in dimension and position. In the culs-de-sac the ovaries were felt, and appeared enlarged, and were extremely painful on pressure.

Dr. Pozzi performed a laparotomy

and found a double ovaritis with healthy tubes. One of the ovaries, which appeared completely lost, was removed; the other was riddled with ignipunctures. The result was nil, and the patient continued to suffer and lose blood. On account of the intensity of the symptoms and the apparent uselessness of the former operations, Dr. Pozzi decided to perform hysterectomy. The uterus was fungous and presented a peculiar condition of affairs; the uterine cavity had a T-shape form; the horizontal branches of the T were very long, and the curette could not penetrate into their extremities, which were still covered with a fungous mucosa. In the vertical branch, where the curette had scraped, there was no longer any diseased endometrium. Other than this endometritis, the uterus appeared absolutely healthy. The special condition of the uterine cavity explained perhaps the reason why the curettement had no effect in this case.

What are the conclusions that we may come to after this analysis of cases?

The operation offers no gravity. Dr. Pozzi has performed laparotomy and applied this treatment for sclero-cystic or diffuse ovaritis about sixty times, and none of his patients have died.

No complication has ever been met with following the operation. De-launay has mentioned a slight rise in temperature on the third or fourth day, but he does not attribute any importance to this rise, which in no

way complicates the cure. For my part I have gone over the temperature charts of the patients operated on, and I have found that this rise had occurred in several cases, which never went above $38^{\circ}.5$, and never produced any delay as to the cure.

There never was any trouble with the abdominal wound, excepting a slight suppuration of the wall in case twenty-two. This suppuration caused the formation of a permanent parietal fistula, which got well after excision. Eventration following laparotomy has never occurred, because we only employ a short incision (six centimetres) while the wound is sutured in three plans.

Of twenty-three cases in which ignipuncture or partial resection of the ovary was performed, nineteen have been cured; of these nineteen, thirteen have never felt any pain after the operation and have had regular menstruation; others have still only some slight pains, but they are so very slight that the patients hardly notice them, and continue their work without difficulty; one woman was only improved, three others received no benefit from the operation. And lastly, four patients became pregnant; three had normal labors at term with living children; one had a miscarriage.

In terminating, I would mention that none of the patients have presented the more or less serious troubles which follow bilateral castration.

[To be continued in June number.]

Hæmorrhagic Metritis.

A CLINICAL LECTURE DELIVERED BY

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GENTLEMEN: The patient that I have taken for today's clinic presents a form of uterine disease which is of importance to you, as it is met with frequently, and you should be familiar with its symptoms and treatment.

The patient's history is briefly as follows: She is thirty-six years of age, and works in a box factory. Menstruation appeared at the age of fourteen, and was regular, although rather painful during the first twenty-four hours.

Married at twenty-eight: she has had two normal labors at term, the last one two years ago. Both children living and well. No specific history.

Seven months ago, the patient aborted at three months. The miscarriage was followed by hæmorrhage, and she kept her bed for three weeks. Since then she has been subject to metrorrhagia, which is very profuse with clots, lasting ten or more days, and occurring every three, and lately every two weeks. The quantity of blood passed is very considerable, and has produced an advanced anæmic condition, so much so that she has been obliged to give up work.

By bimanual examination I find an enlarged tender uterus in anteversion. The adnexa appear normal, and no pain is experienced by the patient when I press upon them. There is an incomplete left-sided laceration of the cervix, which is somewhat enlarged and hard to the feel.

By the speculum you notice that the cervix is free from erosions or cystic degeneration.

The principal symptom in this case is the metrorrhagia, and from the history and examination, I make a diagnosis of hæmorrhagic metritis or metritis post abortum.

In this type of metritis the metrorrhagia is the all-important symptom on which to base your diagnosis.

By questioning your patient you will obtain a history similar to this. She will tell you that the abortion was accompanied by a severe loss of blood with clots. The ovum expelled, this very abundant flooding, which lasts for some hours, diminishes in quantity, but a bloody discharge is present for eight or ten days.

The patient remains quiet during

this time, and, with or without treatment, the hæmorrhage finally ceases completely, and everything appears to be normal, when, two or three weeks later (sometimes sooner, rarely longer), a new hæmorrhage makes its appearance.

The patient thinks that this is the return of her menses, but it is nothing of the kind. Instead of coming on at the normal time, it appears several weeks too soon, and is a very abundant flooding containing *clots*; its duration, moreover, is from eight to twelve days. Thus it is plainly seen that this flooding in no way presents the character of the menses, such as occurred before her pregnancy.

The flow finally stops, but a repetition of the hæmorrhage will occur in ten days or two weeks later.

Now, gentlemen, from this time on you may be sure that a hæmorrhagic metritis is present; the patient is always losing blood and the flow will finally be present twenty days out of each month. The menstrual period can no longer be determined, and there are even cases in which the hæmorrhage will only disappear for a few days. Some patients are flowing continually, with variations in the quantity of blood only.

When the disease has reached this condition, menorrhagia can no longer be distinguished from metrorrhagia, and in reality the latter term is the more exact when applied to the condition under consideration.

This metrorrhagia is always accompanied by clots during the first few days, or simply the first few hours of

the flow. In those patients who never entirely cease flooding, the moments of increase in the quantity are announced by the reappearance of these clots. In other cases only liquid blood is lost, but the quantity is greater during the first few days of the metrorrhagia.

However, this clinical picture may present many variations. For example, you may have to do with a metrorrhagia in which there is a continual discharge of clots, and merits the term of metrorrhagia more from its quantity than from its duration; the clots may also mark the end of the flow instead of the commencement.

Generally speaking, hæmorrhagic metritis is not painful; the pains are only present when clots are being expelled, and cease as soon as this is accomplished.

As in all other diseases, there are exceptions to the rule, and pains occurring in other types of metritis are met with in the hæmorrhagic form, although in less intensity.

The patient will be more likely to complain of a sensation of weight in the pelvis; *she feels her uterus* so to speak, and this painful symptom is particularly noted in the median line. In some cases the pains are those of painful metritis, seated in the pelvis, kidneys, and internal aspect of the thighs, with irradiations through the rectum, bladder and abdomino-genital nerves.

Between the periods of metrorrhagia, leucorrhœa is frequently present. It is usually of a whitish-

yellow color, rather thick, and comes from the uterus. The gelatinous leucorrhœa of the cervix is rarely met with in these cases, because the lesions in this form of metritis are seated in the corpus and not in the cervix.

By digital examination the cervix will be found enlarged, although not greatly, as in the case I have shown you: while the uterus is larger than normal and movable and not usually tender. The adnexa, if not previously diseased, will be found healthy and will remain so.

By the speculum, the cervix is seen in a state of hypertrophy, thus participating in the enlargement of the entire organ. It is healthy as in the case of the adnexa, and if you find granulations, ulceration or ectropion of the lips, it is more than probable that these lesions have been produced by a former cervicitis.

As you see, the diagnosis of this type of metritis is easily made. You will base it on the history of the case as well as by the absence of a fibroid tumor or affections of the adnexa which produce metrorrhagia. When you find by digital and bimanual examination, as well as by a careful palpation, that the uterus is slightly hypertrophied, that the culs-de-sac are normal, and still more, that the patient attributes the trouble to a miscarriage, no doubt should remain in your minds as to the nature of the affection.

A fibroid polypus could not cause a mistake, for it is always easily detected through the half dilated

cervical canal. On the other hand, a mucous polypus presents more difficulty, for as I shall show you, there is a kind of polypus to which Mayer has given the name of deciduoma, and which has its starting point in the remains of the decidua. But this is a complication of decidual metritis rather than a different affection.

It is also the same for the neoplasms described by Sænger, which are nearly entirely made up of large decidual cells and which are in reality a kind of sarcoma.

But, gentlemen, these are complications of *post abortum* metritis, and the diagnosis can only be made when the neoplasm has attained some size. If they should be present along with a hæmorrhagic metritis, it would be far more important for you to make a differential diagnosis of the other varieties of mucous polypi, so that when you have removed them, the ablation may be followed by a curettement of the uterus, thus curing the hæmorrhagic metritis.

The progress of hæmorrhagic metritis does not tend towards cure, and neither does it generally incline towards aggravation. The patients, as in our case of today, become weak after a more or less length of time from the repeated loss of blood: they become decidedly anæmic, and in this condition their organism is less resistant against other intercurrent maladies, and it is really most astonishing how many women afflicted with this condition will go on for months and even years without their life being in serious danger.

The prognosis is, however, relatively serious, because these metrorrhagias render the patient so weak that she is in most cases obliged to give up her work. The flooding forces her to remain in bed at least several days out of each month, while the rest of the time anæmia is so marked that she has not the vitality to attend to her duties.

As to the pathology, this type of metritis is usually *interstitial* or is *mixed*, that is to say, both glandular and interstitial, but with a predominance of lesions in the stroma. The hæmorrhagic metritis of old age is the one in which you find the purely interstitial form, while in young women the lesions of the stroma predominate and the glands do not completely disappear.

There is a great vascular proliferation in the type under consideration. The new formed vessels, which are only capillary, are irregular and of relatively large caliber. They are generally very superficially situated at the free surface of the endometrium, while the greater part of the culs-de-sac of the glands are situated below them. The hæmorrhages are thus accounted for by the considerable number of vessels and their superficial situation; consequently the characteristic lesions of hæmorrhagic metritis are the marked changes in the stroma.

Now, as I have said, in the *post abortum* metritis the principal lesions are in the stroma, consisting of changes in the vessels, and, according to Schröder, an interstitial endome-

tritis is the most frequent form, while the glands only become diseased after a certain time. But as is pointed out by Potherat, a miscarriage can only favor infection, consequently this is not the *post abortum* metritis as we understand it.

It is infection that plays the principal part, while a metritis following abortion, and whose symptom is hæmorrhage, it plays only a secondary part: it is the remains of the decidua that produces the lesions. The débris of the decidua are retained, and it is around this foreign matter that the lesions of interstitial metritis commence.

A few words now regarding the formation and transformation of the decidua, which will refresh your memories and make what I am about to explain more clear.

According to Coste, Robin, Friedlander and de Sinety, when the fecundated ovum comes into the uterine cavity some eight or ten days after leaving the ovary, it comes in contact with the congested endometrium. It is stopped in the neighborhood of the orifice of the tube by one of the many folds which exist in the mucosa, and being pressed between the folds it finally becomes *planted*, so to speak, in the mucous membrane.

Soon the borders of this depression caused by the implanted ovum come up and surround it and become hypertrophied, thus progressively closing in the germ, which is at last completely imprisoned in a sort of cyst whose walls are made up by the endometrium.

That part covering the ovum is called the *fœtal decidua*, or decidua reflexa, while that which has been pressed in by the ovum and on which it is implanted, forming later on the placenta, bears the name of *inter-utero-placental decidua*, or decidua seratina. And, lastly, the endometrium which has no relation to the ovum is designated as the *uterine decidua* or *decidua vera*.

At the commencement of pregnancy the ovum, as you know, is extremely small, and the decidua covering it is in contact with only a very small portion of the uterine decidua; but towards the end of the third month the decidua reflexa is in direct contact with the entire decidua vera.

After the commencement of the fourth month the decidua vera and reflexa begin to close together, and from that time on both membranes are so intimate that they only form one. At the same time, many very solid adhesions are formed with the chorion, the latter being, as you are aware, the external envelope of the ovum.

During the first two months the decidua vera is thick, very vascular, covered with numerous folds, while its internal aspect is riddled with small openings which are nothing more than the orifices of the uterine glands. But from this time it progressively loses its considerable vitality, the folds disappear, it decreases in thickness, while the greater part of the vessels and their elements vanish.

This atrophy is most marked at

about the fourth month, and at the same time the adhesion between the decidua vera and reflexa is about complete.

According to Friedlander, changes take place which end in the detachment of the decidua. These begin at the third month and have the following characters at the end of pregnancy: The decidua vera has no epithelial lining, being reduced to two layers, one glandular, the other made up of special cells.

The first named is in contact with the muscular tissue of the uterus and composed of glands lined with epithelium and united by connective tissue. The second is made up of large round cells in the most superficial part, while that part which is in the proximity of the glands is composed of spindle-shaped cells.

It is in the middle of the spindle cell layer that is to be found the marking line of the decidua when this is expelled, thus leaving the glandular layer adhering to the muscular tissue with part of the spindle-shaped cells. Robin, I would say, although giving an entirely different explanation as to the detachment of the decidua, specifies that, although the decidua vera loses part of its adhesions with the uterus at the fourth month of gestation, is more easily separated from it the farther pregnancy is advanced.

Now, what takes place in the decidua reflexa during this time? At the commencement of pregnancy it undergoes the same histological

changes as the decidua vera, but the atrophy occurs much sooner, generally one month after conception.

According to Kölliker, the glands, vessels and epithelium diminish little by little as the decidua reflexa becomes atrophied, and during pregnancy all its elements disappear.

The decidua serotina takes on an entirely different growth. Quite in the beginning it presents no difference in structure from the decidua reflexa and hypertrophies along with it. The vessels increase in size and come into relation with the corresponding villousities of the chorion, and a hypertrophic condition results which is just the opposite from the atrophic changes in the decidua reflexa.

This hypertrophy results in the formation of the maternal placenta, while at the same time the villousities of the chorion which are atrophied on the side of the decidua reflexa become hypertrophied as well as the vessels it contains, and the result is the development of the foetal placenta.

The atrophy of the villousities which extend into the decidua reflexa is complete at the end of the third month, the placenta then being a distinct organ developing proportionally to the growth of the foetus.

You will see from what I have said that the line of division of the decidua, which gives place to the detachment of that membrane, is only well marked at the fourth month of pregnancy. It is consequently not to be wondered at that an abortion occurring during the first three months has as a result a partial ex-

pulsion of the decidua. It is evident that where the most active work is going on, namely, in the decidua serotina, that separation is accomplished with more difficulty, and it is precisely here that pieces of the decidua will remain undetached.

But the decidua vera is better placed to give rise to the production of hemorrhagic metritis, for it is only in a marked condition of atrophy at the end of the fourth month; and during the first three, especially the first two, it is very thick and vascular.

The etiology of decidual metritis is clearly one produced by an abortion occurring in the first three months of pregnancy.

As to the pathogenesis of this form of metritis, there is much difference of opinion. Pozzi and the regretted Prof. Trélat believe that in all metrites there is infection, and in the type of metritis in question, this infection is limited and local, the decidual débris acting as a good culture media.

Other writers hold that the affection is due to the arrest of involution of the endometrium, which is caused by the retained decidua. For my part, I am inclined to adopt the latter view, although the question will be settled when well conducted bacteriological studies are attempted in this direction.

As to the treatment of hemorrhagic metritis, there is but one, and that is curetting the uterine cavity. This should be done as soon as you are certain that the metrorrhagia is not simply due to the miscarriage, but

is a symptom of a lesion of the endometrium that will only disappear by the removal of the retained membranes; for by operating as early as is possible, you will prevent your patient from becoming anæmic by abundant and prolonged flooding.

Curetting should be done immediately, if the life of the patient is in danger; but in the greater number of cases you will be able to stop a metrorrhagia due to a miscarriage occurring in the first few months of pregnancy. This is accomplished by hot vaginal irrigations or by a careful aseptic vaginal tamponade, and attacking the endometrium with the curette should only be resorted to when the metrorrhagia has become symptomatic of a decidual metritis.

However, if the metrorrhagia is of such degree as will necessitate an intra-uterine tamponade, I should advise you in this case to first curette the cavity and then pack with iodoform gauze.

Curetting is clearly indicated when hæmorrhagic metritis has declared itself, and this may safely be said to exist as soon as a second metrorrhagia appears. For example, when a woman who has had a miscarriage accompanied by a very profuse flooding, has what she thinks are her menses two or three weeks after the flooding, and this supposed menstruation is a real hæmorrhage, surgical measures are indicated.

In performing a curettement you should be perfect in your antisepsis; the bowels should be moved the night before, and a warm vaginal douch of

a 1 per cent. solution of sulpho-naphtol or creolin should be given the night and morning before the operation; the quantity should be three litres. The vagina is scrubbed with soap and brush, and the bladder emptied with a glass catheter; the latter should be kept in a glass filled with a 1 in 1000 solution of bichloride of mercury.

When the miscarriage dates back several months you must dilate the organ, but if the operation is performed soon after this has occurred, dilatation will not be necessary. The dilator should be either that of Reverdin with its irrigator, or Hegar's sounds may be used.

You all know the technique of curettement, so I will not insist on this point at length. The patient should be put under complete narcosis, with ether or chloroform, but in cases in which the heart, lungs or kidneys are in a condition contra-indicating their exhibition, local anæsthesia may be obtained with a 25 per cent. solution of hydrochlorate of cocaine applied to the endometrium. This method is safe, I think, because the curetting of the mucous surface destroys the absorbing membrane.

The floor of the vagina is depressed with a Simon speculum, and the cervix is lowered by a pair of forceps, taking care not to exercise too much force in so doing. You thus steady the organ while you scrape.

As to the curette, I consider Recamier's and Rheinstädter's by far the best. With the former instrument

you are able to attain all the corners of the uterine cavity, while with the latter you can curette the anterior and posterior surfaces: at the same time the irrigation through the latter curette washes away the débris.

Never use a dull curette, excepting in obstetrical practise, and then use a *dull* Rheinstädter, which is an invaluable instrument in these cases.

You must curette thoroughly on each surface, the fundus, sides and angles of the organ until you hear the characteristic *scratching sound* indicating that the muscular tissue is reached.

One reason for my preference for Rheinstädter's instrument is that the spoon is large and the endometrium is more surely and completely removed. Werth examined uteri which were removed at various periods after curettement had been performed, and found that the entire mucosa was never removed, as he found patches which were untouched by the curette, while in some places the superficial layer was wanting and in others the muscular tissue was denuded.

A hot intra-uterine irrigation of a sulpho-naphtol, or other antiseptic solution should be kept up by means of a Rheinstädter curette or a Fritsch sound during the operation, thus removing the débris. I have never seen a case in which there was serious hæmorrhage from curettement, and if you are careful as to your antiseptis, there is absolutely no danger of infection.

The operation should be completed by a drainage of the uterine cavity with iodoform gauze, which may be dipped in a solution of creosote in glycerine, which has a favorable action on the uterine cavity.

There should be no elevation of temperature after the operation, and if there should be, the drainage is to be renewed and an intra-uterine irrigation given.

When all goes well, the gauze is to be removed on the second day and a new strip inserted, after an intra-uterine douche of one litre has been given, as this irrigation will remove any débris of the mucosa which may possibly remain in the cavity, and which is sometimes the cause of an elevation of the temperature. Remember that *the change of dressings must be done with as much antiseptic precautions as the operation itself*.

You will renew the gauze again in two days, after which time a daily vaginal douche will be quite sufficient.

The patient must remain in bed for two weeks, and at the end of the third may take up her usual manner of life.

This patient will be curetted to-morrow and the above treatment will be applied: but on account of her considerable anæmia I shall give her iron in the form of *ferratin*, which is an easily assimilated preparation, during her convalescence.

Sero-cystic Disease or Hydrocele in Women. With Report of a Case.

THOMAS H. MANLEY, M.D.,

NEW YORK,

Hernia is always a more painful and serious infirmity in woman than in the male. This is because of the anatomical arrangement, the character of the extension, as well as the wide difference in function.

It is always a positive misfortune for a woman to be compelled to wear a truss for hernia, but how much more aggravated is it when she is obliged to submit indefinitely to the painful grip of a truss, over a mere bag of water in the inguinal canal, mistaken for a rupture?

That this mistake does not very infrequently occur is abundantly testified to, both in modern and ancient surgical literature. In former times there were various reasons which might excuse an error in this direction, but, now, when an exploratory incision is permissible, as an aid to diagnosis, it should not occur.

Chronic swellings in the groin, in either sex, sometimes present so many puzzling features that their differential features are isolated rarely with difficulty, if at all.

Tumors or cystic distension of the unclosed end of the canal of Nuck in the female, though not a common pathological condition, is one which particularly of late years has received extensive notice from gynecologists

and surgeons. Being intricately connected with the internal organs of generation, they are of special interest to the former; and from their many features in common with hernia, are a subject of great importance to the latter.

The older authors collectively grouped all liquid or semi-liquid accumulations along the round-ligament outward into the serous, under the general designation of "hydrocele." Later, a distinction was made between a simple serous collection in a hernial sac, here located, and one which had an independent investing membrane. Wechselmann defines hydrocele in women as all per fluid collections within the canal of Nuck. (Arch. de Laugenbeck, 1890.)

With a better and more accurate knowledge of the various anatomical constituents which enter into those fluid formations that find lodgment along the inguinal canal or mons-veneris, it is evident that the same line of treatment is scarcely appropriate for all.

Historical Consideration.

From an examination of the surgical literature of the subject it is evident that what was known as "cystic hernia" of the labium-majus

was recognized since a very remote date. Lepeyre tells us that Artius gave an extended description of this lesion and that Ambrose Paré successfully opened such an accumulation in a young woman.

In France, later, Plater, Lecat, Taviard, Desault, and Lallement have described them.

John Hunter was the first to accurately describe the dartol infundibulum and the various pathological changes found in it in females. Astly Cooper, Brodie, Symme, and Crampton of Britain, later have given special notes to these curious tumors so erroneously confounded with hernia.

In America, although many isolated cases have been reported, it was only of late years, since anesthetics were discovered and greater freedom was permitted in diagnosis and treatment, that an analytical study of them has been made.

Since gynæcological surgery has been so sedulously cultivated the pathology of all those heterogenous accumulations in the parenchyma and tubular structures of the female generative organs has been greatly elucidated, and now the inflammatory, neoplastic and degenerative character of those various types of cystic masses, occupying the generative tract or its accessory passages, is well understood; when simple and definite measures of treatment will, in appropriate cases, afford relief in all, and lead to a permanent cure to the majority.

Morbid Anatomy.

What the precise anatomical elements are, which primarily enter into these cysts of the round-ligament is not yet definitely settled. All anatomists are in accord on the existence of Nuck's canal in early foetal life, but some few deny its presence in the adult. The probabilities are that the round ligament, the analogue of the processus-vaginalis in the male, in a certain proportion of infants, its terminal portion remains open and is continuous with the general cavity of the peritoneum; while in others the distal end remains open and distended with serous material, while its intra-abdominal portion is closed; leaving a condition not unlike what Mr. Jacobson designates in the male as "infantile hydrocele."

Zuckerkanll, in the dissection of the cadavers of nineteen infant females from one to twelve weeks old, found the open diverticulum of Nuck in four, or in about 20 per cent. In three it was open on both sides. Bouchut has found the cyst wall between the dartois and the integument. Duplay in 25 dissections was unable to decide the relation of these masses with the elements of the round ligament. Picque admitted the occasional potency of this uterine support, but believed hydrocele in it very rare. Skene of Brooklyn, in his large experience, never saw a case. Heitzman, Virchow,

Wile, Richelot, Senn and many others have in late years examined and analyzed with great thoroughness cases of female hydrocele, springing from pouches in Nuck's canal, as to incontestibly prove their origin in its anatomical elements. In my own case, after the bulbous end of the diverticulum was dissected away.

Complications and Intricacies of Diagnosis.

According to Edwards (Am. Jour. of Obst., May, 1894), prolongations of the peritoneum may reach below the mons-veneris, through the internal ring covering the round ligament. When adhesions occur above, and secretion continues below, we have a hydrocele. He gives several varieties. In one, alternately, we may have at one time, — when the gubernaculum remains open — a collection of fluid widely distending the pouch. At another this may be replaced by intestine. Eisenhart has collected forty-eight cases of hydrocele in women: twenty-nine in the right side and nineteen in the left; none were complicated. In some of them the inciting cause was trauma, followed first by an inflammatory swelling; this subsiding, a cystic growth would appear.

Smith, of the Tottenham hospital, believes the disease more common than generally supposed. He saw and operated in four years on five cases. Operation, he says, is the only sure and radical relief. Tait records cases which were, through

mistake, opened with serious consequences: as what was supposed to be a cyst turned out to be a hernia in the labium.

His conclusion that a correct diagnosis of them is easy, is certainly an error. "If, he says, an impulse is transmitted on coughing or reduction can be readily effected we may be sure there is no cyst." But there is where the mischief comes; as all know, in various types of hydrocele more or less reduction may be effected, and excessive impulse quite invariably succeeds every description of strain.

Cystic disease along or external to the inguinal canal in women, as in men, no doubt favors the evolution of hernia: it certainly is commonly a complication in chronic hernia in females.

Le Dran has reported a case in which these types of hydrocele in cysts appeared in one individual, and all in the same side: one of labium-majus, one of round ligament and one in hernia sac. Mr. Henry Morris mentioned a case of external hydrocele, one encysted of cord and a bubonocoele. Thorborne, speaking on this subject, says that "hydrocele and hernia combined are only of occasional occurrence: but this rarity makes it all the more incumbent on the practitioner to bear in mind at least the possibility of the former when dealing with tumors in this part."

Sometimes, the ovary comes through the canal into the labium. One such case came under my own care, the infant being three months

old at the time. I operated and removed the ectopic organ. This curious condition, though, is only the reverse of the retained testes in the male.

In Percival Potts' remarkable case, hydrocele fluid with the ovary and intestine were found in each labium.

The most extraordinary clinical feature in connection with these hygromata along the inguinal tract is their occasional tendency to provoke all the symptoms of strangulation.

Zwiefel, Chiari and Dumreicher report such cases. Dumreicher in his clinic saw these cases. The first patient was a woman of sixty. The tumor was only of three weeks' growth. She had all the symptoms of strangulation; on operation nothing but a sac distended with air and fluid was found. In the second case, the woman's tumor was easily reducible. After a time symptoms of strangulation appeared. On incision, nothing but a multilocular cyst came into view, containing a brownish fluid.

In the third, the swelling appeared after a heavy lift, six weeks before. At first small, it became larger, and later gave rise to symptoms of strangulation. On division of the tissues only a long sac was found, lined with a vascular, velvety membrane and filled with a yellowish fluid. Chassaignac, Pitha and Klob have reported similar cases.

Klob mentions two extraordinary cases, in which, on *post mortem* examination, hydrocele *femine* cysticae were found. Both had been operations for supposed strangulated hernia.

Many of these cysts have a direct connection with the peritoneal cavity, else it is difficult to explain impulse on coughing and the diminution in volume in the recumbent posture. Hennig, in an inguino-labial cyst of considerable volume, after its evacuation was able to explore the centre of a pedicle the entire length of the inguinal canal: and Braun has extracted a fluid tumor from the groin of a woman which had a thick stalk extending up the inguinal canal.

It is probable that the primary etiological factors entering into the evolution of these masses are the same as in the male. It is absurd for Duplay to deny the potency of the round ligament as a fetal structure. When this remains enclosed we have one type of hygroma: the analogue of spermatocel in the male. This may appear alone, or with a hernia. When obliterated high up there is no hernia. Another type is purely neoplastic, the primitive bud, being an offshoot from the endothelial elements of an extended delicate fringe of omentum at a displaced endoblastic element of the developmental period.

Symptomatology.

Inguinal hydrocele in the female is generally so innocuous as to quite escape notice, barring certain incidents of occasional occurrence.

Volume. The first thing liable to arouse apprehension is the size and situation of the enlargement. The first thought is of *rupture*. And this latter is well grounded, as probably

in not more than *one per cent.* is an inguinal swelling cystic. Many of the features of a cyst are delusive, in the direction of diagnosis, as already intimated. When the tumor appears in the vulva or mons-veneris, and becomes inflamed, the symptoms of this are not unlike those of a varix, an incarcerated omentocele or an initial bubo, tubercular or venereal.

In the simple, uncomplicated, form its detection is possible by utilizing the same aid as in cystic masses on the periphery of any other region.

Diagnosis.

Generally by the aid of palpation we reach an approximate diagnosis of various types of inguinal hydrocele; but, when the fluid accumulation is invested by thick, unyielding investments, this may be difficult or uncertain. In the pregnant, the elements of the round ligament undergo remarkable hypertrophy. Bearing in mind that adipose tissue at the temperature of the body is always fluid, we can understand how in the presence of an epiplocele, fluctuation may be produced, and an error may be committed, in mistaking fat for aqueous material. The position, relation and common characters of these are not uniform, and therefore no definite rule for their recognition can be formulated.

Puncture or Aspiration, a measure of considerable value, is, however, so uncertain in its effects and so dangerous in its application that it should not be resorted to unless certain ex-

igencies require it. If the fluid be at all grumous or viscid it will not flow through a fine needle; besides, there is danger of infection or transfixing a hollow organ by it.

The free incision at once serves the dual purpose of exploration and cure in a large number, and should be our main diagnostic resource when circumstances permit of its safe adoption.

The symptoms of strangulation which sometimes arise when these become inflamed point to the certain implication of some of the peripheral filaments of the sympathetic and that some part of the peritoneum is involved. It is well known that a small mass of extruded omentum usually gives rise to no subjective symptoms, but let it once become inflamed, the symptoms of strangulation soon follow. So it appears, in these hydroceles, those subject to them may be quite unconscious of them until a strain or contusion has been sustained, and so active inflammation sets in. The nerve elements are compressed or stretched, reflex phenomena follow, and violent constitutional disturbances succeed. In this unusual class, the incision alone will reveal the exact pathological condition.

Treatment.

Female hydrocele, when uncomplicated in the infant or child, should be left to nature. Like many varieties of early hernia, it disappears of itself; the fluid becomes absorbed, and the

wall of the pouch united by adhesions, at least for a time.

In adult life, evacuation or extirpation is safe, as well as radical and permanent in its effects.

Report of a Case.

But one case of uncomplicated hydrocele has come under my care; and as this was mistaken and treated for hernia, by firm trussing, it is hoped that its publication may serve a useful purpose in the way of calling attention to the possibility of error in diagnosis and the painful consequences to the afflicted.

Patient, M. E., seamstress, thirty years old, single, American. For seven years she had a fullness in the right side, just below the external ring. At first she did nothing for it, but as it seemed to be growing larger, and she was having pains in the back, she consulted her family physician, who pronounced her case a rupture, and recommended a truss.

The truss fitted badly, and she secured one of another make; but it seemed to produce a feeling of discomfort over the fullness; still it seemed to relieve the backache.

In the summer season, and at each menstrual period, the parts were so sensitive that she had to set the truss aside. For three months, before she came under my notice, she could bear no truss pressure over the tumor.

She stated that when it first appeared it would seem to quite disappear during the night to be larger again in the morning. But for more

than a year it had remained the same size without any apparent variation. For the last month she thought it had been growing larger. On examination, a pyriform tumor was found which extended down into the subcutaneous tissues of the mons-veneris. It was broad at its base, and tapered as it entered the ring. It had a firm unyielding feel, nearly as dense as a fibroid. There was a slight impulse in coughing. It was my opinion that it was a case of incarnated epiplocele. This was confirmed, I thought, by the occasional attack of nausea, tympanitis and constipation, which she said troubled her, when the part would become very sensitive. Besides, she complained of colicky pain in the hypogastrium when the mass was moderately squeezed.

Believing that a hernia was present, an operation was undertaken for its radical cure. A long incision was made over the fullness, and a careful dissection made until the capsule was reached. Now, the entire tumor was freed by decortication, and lifted out, only its pedicle, which extended inward, preserving attachment with the adjacent part.

I now cautiously open the capsule, when a quantity of whitish pulpy material issued through. The lining surface was granular and uneven.

A probe could be passed up the diverticulum fully an inch beyond the internal ring. The stalk was pried up to this point and cut off. The large incision in the tissues was now closed; union was primary and recovery uneventful.

In this operation, as in all those undertaken for hernia, or any description of adventitious growths along the inguinal canal of the female, as there is no important structure like the spermatic cord in the way, solid obturation of the vent is possible. It is only necessary that the aponeurosis of the external oblique be carefully closed by an absorbable suture, else, as in not a few of the Alexander operations for shortening the round ligaments, hernia may later occur through the breach in the tissues.

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SOCIETY PROCEEDINGS.

Suffolk District Medical Society.—Section of Diseases of Women.

REGULAR meeting, March, 1896.
Geo. Washburn, M. D., in the chair.

Discussion on Abortion.

Dr. E. W. CUSHING.—This is a very old and universal subject which we have to discuss, and it is shown how much the world is alike in all times by the fact that in the oath of Hippocrates one of the things that all physicians promise is to commit no

abortion. In the time of Hippocrates it was done by introducing a pessary of some kind into the vagina, probably with irritating properties. Juvenal relates that few puerperæ lie in gilded beds. The same pressure which exists on the population have existed in Rome and with the same results. I do not wish to appear to doubt the hopes of the gentleman who has just spoken that the world is getting better in the last ten years.

but I am afraid that the girls who come into the hands of his society are those who have not succeeded in getting abortion performed, and when they begin to feel the motion and they realize the existence of the child, then they get over the desire for abortion. Ruyscius of Amsterdam, writing in Latin in 1725, explains how the "virgines corruptæ" used to come to him for abortion, and how he put them off with innocuous medicines till three months were over, and they would then be ashamed to seek for it and be willing to bear the child. I do not see very much of the young women in this way. Their mothers bring them sometimes, supposing they have tumors, and sometimes up to the end of pregnancy they will stoutly affirm it is a tumor and nothing else. To my mind the greatest evil is in the married women. There is a good deal to be said in behalf of a young woman who, more or less, without reflecting on the consequence, has made a misstep, and having got herself in that condition, is wild and desperate and ready to throw herself into the river. I do not think that any one who has not seen one or two of those cases and heard their lamentations and seen their misery can realize the terrible temptation they are in to have abortion performed. Looked at as a moral question, what is there to lead them to bear the child and go through all the obloquy of it, when the married women and women members of churches and great workers in societies of all kinds, having had as many children as they feel they can support, claim it is a right and necessity to have an abortion, and do it without cruple or shame, and no doubt every man in this room has had patients come and take that ground. Husbands come. They think it is wrong to meddle with an unmarried women, but claim that a

married women has the right to seek to be disembarassed of her pregnancy. The reason is not far to seek. There are comparatively few people in this world who can reason logically or feel deeply or who are actuated by their abstract reasoning. The average woman can recognize that she is in the family way when she feels the motion of the child. As long as she can persuade herself that she has only skipped her period she is willing by self-deception and suppression of the truth and suggestion of the false to persuade herself that she has only skipped her courses and must have them brought on. The average man looks no farther than the law, and the law as it is framed in this country, and is a relic of the common law of England, as far as I know and am informed, punishes abortion, not on account of the suppression of the life of the child during the first two or three months, but on account of the danger to the life of the mother. In one of Cicero's orations, when he is berating Oppianians, who had married a woman, agreeing at the same time to murder his own two living children, Cicero emphasizes the enormity of this child murder by stating that when he was in Africa a woman was put to death merely because she had allowed an abortion to be procured on herself, and had thereby taken away the "expectation of the family, the hope of the father and the designated citizen of the republic." That was the Roman way of looking at it. The child was a possible soldier, possible tax-payer, and the state had an interest in him. As far as I know that position does not obtain in our legislation. It is on account of the danger to the mother that an abortion is a misdemeanor and an abortion is only criminal for a woman who is "quick with child." As a matter of

fact, no abortionist is ever prosecuted or punished in this country unless the mother dies. In late times in England that common law has been amended by judicial decision, and a judge has defined it that "quick with child is having conceived." Undoubtedly the average man and woman do not consider that a child has any rights until it has a certain size, where it can be recognized, and when there is an abortion and a fetus is produced, the women will wonder whether it has head, legs, arms. I am leaving out of my remarks the Catholics, who are trained to have strict ideas on the subject, not only on the question of abortion, but on that of prevention of conception (which we might discuss some time), wherein again our community, owing to the difficulties of living and the press of circumstances, take very different grounds from what is taught by the Catholic church. Other married people, perhaps, begin bravely enough, but when they have had four or five children, or even less than that, their friends stare at them and think it is wrong and beastly and immoral to bring into the world more children than they can support and educate "properly." Therefore there is this great crop of abortionists in Boston and in all our cities, and one is met every day by ladies who insist that if you will not get them out of their trouble they know where they can get it done, and that it is a shame for them to have to go to an ignorant man when they might have it all done comfortably by their own physician. We have to explain to them and reason and argue and all that sort of thing, and it is to be supposed and hoped and believed that all the members of our society do what is right. Nevertheless, it seems to me there has got to be an education of the community as to the criminality of this

procedure before there can be any conviction. It is practically impossible to get evidence of abortion unless the woman dies. There is not a man in this room but knows of abortions. Yet we say nothing; whereas if any of us saw a man shot or stabbed we would go at once to the police. It is all very well to say that abortion is murder of the unborn child. Practically the community does not regard it so, and it is going to take a long process of education before they can be made to believe that it is murder.

Whether that can be accomplished in view of the increasing crowding of our civilization, and the pressure under which people are put, is a question, but I think it can. I think that something could be accomplished if the medical profession would take united ground on this, and if the Protestant clergy would take the stand of the Catholic clergy, and up and down roundly denounce the practice a crime. But the stream will not rise higher than its source. The average sentiment of the community does not come up to the sentiment of the medical profession in regard to the criminality of abortion except as regards the risk to the mother.

It is curious to know how widely spread, and in what countries and by what various and crude means abortion is carried on. I once read an account of an Eskimo method of producing an abortion. Here one has to hire a flat, and pay for coal, good clothes, theatres, etc., and finds it inconvenient to have a family. There they have to go out and kill seals in the dark, and find it perhaps impossible to feed a family. They have a stylet made of whalebone, and that is enclosed in a sheath of leather, and there is a little opening for a piece of deer tendon, by which, when the sheath has been introduced into the os

uteri, the point of the stylet can be pushed through; then the sharp piece of whalebone can be used to rupture the membranes, and by pulling on the deer tendon, the sheath comes out again over the whalebone, and is extracted without further trouble. It is a pity that all the abortionists in Boston are not so careful with their procedures. One of our professors in the South has invented a sort of snare, the description of which he published: with this, after dilating the uterus, the fœtus could be snared and the woman go home. I never heard that this man was put out of any society for it. In some savage countries, they lay the prospective mother down and trample on her belly, and as the women are tough they can stand it: aborting but not dying. It is well known that the abortionists in the Orient have attained a high pitch of perfection. I do not know what way it is done there. There system of living never could stand so many children. Even one rich man with three or four hundred concubines would have a crop of children that would fill a train of cars if there were no means to get rid of them. In some other countries, where they fight and hunt continually, they have one wife for a family of brothers, and the children are in common. The Chinese have tremendous masses of population collected in cities built on boats. They castrate all the little boys. If you look at a good many of the Chinese here, you will see that they have the appearance of eunuchs.

I have nothing to say in regard to the surgical aspects of legitimate abortion for saving the mother's life, except that there is room for great advance in our methods by treating it on strictly surgical lines. You have what is practically a bleeding polyp in the uterus, and it is your business

to get the uterus clean, and that is not done by stuffing a tampon in and calling again in twenty-four hours to see if it had come away, although this used to be the orthodox way of treating accidental abortion, while all attempts to empty the uterus designedly were clumsy, crude and dangerous. Now all is or ought to be changed.

Dr. CUMSTON.—I want to say a few words regarding the treatment of abortion, either abortion occurring in a diseased uterus, or one to which you are called if it has been produced mechanically. What experience I have had in private practice has led me to believe that many general practitioners treat miscarriages in too light a manner. The after care of the patient is decidedly neglected in a great many cases, with very bad results to the woman. I, as an example, recall a case I saw about ten days ago. A lady had aborted three times and supposed her self to be again ten weeks pregnant. She came to me to know if there was any way by which she could carry her child to term. On questioning I learned that her physician, a man of large experience, allowed her to get up about the second day after the first miscarriage, and also after the following two miscarriages. I attributed the trouble entirely to the poor care in the first miscarriage, because, if a woman gets up immediately afterwards, it is evident that the uterus will be troubled in its involution, and I think many cases of endometritis result from rapid getting up after miscarriages as well as after labor. As to the operative technique of miscarriages, unless you are satisfied that the ovum has come away whole, and that no membrane remains within the cavity, the uterus should be curetted and treated surgically. I think in many cases there is difficulty in properly curetting a

uterus that has just contained a foetus. If there is any amount of periuterine inflammation, as there often is, you do not want to draw the organ down to the vulva. I prefer the dull irrigating curette for curetting the uterus after miscarriage or in the puerperal condition, for I think the endometrium is then in a fungous condition, and more easily removed, and with less danger by the dull than by the sharp curette. I have never seen any trouble come from the irrigation. Many operators say it is poor practice to irrigate while curetting, but in the case of abortion or labor the os is quite largely dilated, and will allow the return flow of water to escape very easily. This is Rein-statter's dull curette. He also has a sharp one. The Fritsch's valves to my mind are very good in cases in which you do not want to draw down the uterus. The upper valve has a stop-cock, which may be connected with the irrigator, and you can irrigate the whole time the operation is going on. You use the tenaculum forceps to steady the uterus while curetting, but the shape of the lower valve is such that by a little traction on the posterior wall you can draw it down and shorten the posterior cul-de-sac, and the cervix will come into sight. The valves have this advantage in miscarriage in which you want to curette immediately, sepsis perhaps being present. The upper valve is very broad, and has two wings coming from each side which will conceal behind it and keep out of the way of the operator the hairs on the vulva pubes when you have not the time to shave them. That curetting should be done in all cases where there is any symptom of hæmorrhage following abortion seems to me decidedly indicated, and not wait for any slight elevation in temperature or a chill, as many physicians

do. In closing I would say that I think that miscarriages and abortions should be treated with as much care and even more than the post partum after a normal confinement.

Dr. FORSTER.—I was surprised at the remarks of the Rev. Mr. Tobey. My experience at the City Hospital is that we have a great many of these cases, and the number seems to be on the increase. I looked up my cases today, and I find that since 1882 in the City Hospital 184 cases of abortion were entered. That seems rather a small number for that hospital, but all the cases are not entered as abortion. Many were entered as sequelæ to abortion, pelvic cellulitis, septicæmia, when the primary cause was abortion. In my ward, which is a small one of 27 beds, I have had 34 cases in the last three years of abortion so entered, and a great many other cases which were entered as sequelæ of abortion. In regard to the number of abortionists in Boston since our present law, a great many have left town, and many are being prosecuted. They cannot advertise and call themselves doctors in the papers. You hardly find a single advertisement now of a doctor who is not registered. In the last few weeks a great many cases have been brought to notice and punished for using the name doctor. In regard to what Dr. Cushing said about the married women, out of the thirty-four over half were married and some as old as thirty-eight. The older ones were all married. In regard to treatment. If there is no rise of temperature, no bad odor, and no discharge from the uterus, I let them alone, but as soon as there is any rise of temperature, any odor, or continual bleeding, I curette at once, and I do not use the dull curette, or one having an irrigation tube through it, which to my mind might carry the germs of sepsis.

I prefer to use the ordinary douche. The sharp curette never has done harm in my hands. I wash out with fountain syringe, wipe out thoroughly with iodoform gauze. I insert dry iodoform gauze, put to bed, remove the gauze about the sixth day and let them up the eighth. I have had no bad results. In seeing these instruments it occurs to me that miscarriages are generally treated by the general practitioner, and I doubt if many of them could afford to carry round such elaborate articles.

Dr. TWOMBLY.—I listened with a great deal of pleasure to Mr. Tobey's remarks, and think he should feel that his work has not been in vain among the poor of the city, yet I fail to agree with his conclusions that abortions are decreasing. It seems to me that this class of cases is on the increase. It is a burning shame that our city of Boston cannot do better in this respect to prevent such things. Our medical law is a step in the right direction. We as practitioners have a tremendous responsibility and duty to prevent this criminal act from occurring. Many times we are drawn into these cases through no fault of our own. I remember being asked to see a case of which I knew nothing. When I arrived I suspected something had been done. Strict questioning failed to give me any information, and I treated the case to the best of my knowledge. I found out afterwards that it was an criminal abortion. In another case where I suspected such a thing, I felt that it was necessary to protect myself, and had the woman give me a written statement, witnessed by some one in the room saying that she had had an abortion procured without the knowledge and consent of the doctor then attending her, before I would have anything to do with the case. I tried to get her to say by whom the abor-

tion was performed. She refused and said she would rather die than give the name. I think it is well to avoid those cases where you can. There is always apt to be trouble about them, but where you can conscientiously come in and give help to a woman, it is justifiable to do so. You have a right to protect yourself, and so if possible have a consultation with a practitioner whom you trust and who will aid you, and back you up in case the thing should come into court. The temptation is very great to the younger practitioners oftentimes who have learned antiseptics and can do the operation perfectly well with the best results, and large offers of money have been made, but we should not be tempted by the offer of money to do any such thing.

Dr. GREEN.—It would seem to me that abortions are increasing rather than decreasing. Before we can hope for a decrease we must have a different moral sense among the women themselves. Many married women do not care to have children. I have labored with a good many of them and very often successfully. The disappointment has come in the fact that these people do not see any harm in it. I have seen a number in the last few months whom I had delivered. They thought they were pregnant again, did not want a baby. What could I do? I told them there was nothing I could do about it until the time came for delivery, when I should be happy to deliver them. They have all gone away and thanked me and said they felt better. They went away persuaded that they had better do nothing about it. Some patients have asked me if they went to an abortionist and had something done would I take care of them afterwards. I always say I would not. I have been criticized for that position. Realizing that the woman does that

with the eyes wide open, put herself in the hands of the abortionist, I think that she should trust to him. I do not care to go in and take care of the sepsis caused by abortionists. I have wondered if that did not foster abortion, women knowing that if they get the mischief started, good regular physicians would come in and get them out of trouble. I once was called to a nurse not knowing the nature of the trouble. I found her in the midst of an abortion, and she was flowing so badly that I felt that common humanity would dictate that I should do what I could. She afterwards acknowledged it was induced abortion. A year or two after that she came and said she was pregnant, was going to an abortionist, and wished to know if I would look after her. I said no.

It has never seemed to me there was any danger in the induction of abortion in the hands of those who knew how to do it. I suppose almost all the fatal cases have been in the hands of abortionists who were septic or untrained men. Where it is done in consultation, I have never known of any mishap following induced abortion. I think abortion should never be induced by one physician on his own judgment. I should insist that a consultation, agreement of three men, should be necessary to warrant the induction of abortion on the basis of the requirement of the mother's health. So far as the morality of it goes, I think it is a highly immoral procedure, not to be countenanced. I think we have all seen instances where we pitied the woman, perhaps a hard working woman who has four

or five children, and the husband cannot support any more. I think we should talk to the men of the community as well as to the women. I am so old-fashioned as to preach continence to the men when I can get at them. I think we should take the ground that it is a highly immoral procedure to induce abortion. The physician is to save life, not to destroy it.

Dr. CUMSTON.—The question has been asked whether the legalizing of prostitution, as in Europe, would diminish the evil. I can only speak with an knowledge of the condition of affairs by taking Geneva, whose laws are based on the French laws, where prostitution is controlled by the police. I never was intern of this maternity, but followed it daily for four years as a student, and my recollections are that we saw at least one new case a week of puerperal infection following induced abortion. Prof. Vauche said the number of abortions produced among the country people was far greater than those in the cities, and they were done at least in the canton of Geneva by the registered midwives, who followed a course for three years in the maternity. My general impression is that at least in Geneva, which is a good example of a continental city, the number of abortions is quite large. I cannot speak from hospital experience here, but judging from the statistics of various hospitals in the United States, I should say it was fully as large there as here. Professional abortions are few in number on the continent, such illegal practices being performed by the midwives.

REVIEW OF GYNÆCOLOGY.

SHOULD INTRA-UTERINE INJECTIONS OF GLYCERINE BE USED FOR THE INDUCTION OF LABOR. By B. M. HYPES.

It is now three years since Dr. C. Pelzer, of Cologne, first called the attention of the medical profession to the intra-uterine injection of glycerine for the induction of labor and the stimulating of uterine contractions.

In an article published in the *Centralblatt fuer Gynocology* he gave the history of five cases successfully treated by this method and recommended it to the profession. As all previous plans of treatment had been more or less objectionable and inefficient, the use of the intra-uterine injection of glycerine was, as he has recently expressed it, "bathed with delight by many experienced obstetricians." Clinicians in different parts of the world began to apply his method as suitable subjects presented. In short order, reports appeared in the journals, giving the statistics of cases treated, and landing intra-uterine injections of glycerine as a "simple, safe and efficient means for the induction of labor and the stimulating of uterine contractions." Notable among these authors were Dr. J. Clifton Edgar of New York City, who reported two cases, and Dr. Alexander Russell Simpson of Edinburgh, who reported six cases without any failure or serious complications. That the profession was favorably impressed by these reports goes without saying, and the treatment advised was applied by different

physicians in widely separated localities. Fortunately in this manner, by practical tests, are the merits or demerits of new remedies and methods brought out; and before long the intelligence and judgment of the profession adopts them if of proved value, or discards them entirely if found inefficient and dangerous.

"Pelzer's method" has now been before the profession long enough, and sufficient cases (between thirty and forty) with results have been reported, for an intelligent judgment to be passed as to its value. Before discussing the evidence presented, permit me to read the notes of a case coming under my observation.

Through the kindness of Dr. H. Marks, Superintendent of the St. Louis City Hospital, in October, '94, I saw a patient for whom Pelzer's treatment was deemed appropriate. I regret that, in accordance with the importance of the case, a more accurate and elaborate clinical history was not kept. However, I will give it as it has been furnished me, and hope that most of the salient points will be brought out for your consideration.

Mrs. M. W., age twenty-three years, married, U. S. Family history, nil.

Previous history: Typhoid fever some years ago, and an undefined eruption on the body two years ago, her only illness; recovery from both apparently perfect.

Eighteen months ago was delivered by forceps of a dead fetus, after a labor lasting three days. Recovery

good. Last menstruation January 8, 1894. Enjoyed good health until about the middle of September, 1894, when, being then pregnant, she was struck in the abdomen. Felt life for one week after injury, but none since. Has vomited frequently during past three weeks, and suffered more or less pain in stomach and back. Has observed no headache or swelling of body. Entered hospital October 8th, at 6 P. M., suffering with labor pains, which began at 8 A. M. of the same day.

Present condition: Pulse 88 with occasional intermission; temperature normal; tongue moist, and slightly coated; bowels open; bladder evacuated normally; urine light yellow with a specific gravity of 1007; presents a mere trace of albumen, but no casts or blood corpuscles.

Physical examination reveals no abnormality of organs. General appearance healthy; no œdema. Obstetrical examination indicates pregnancy at eighth month; neck of uterus not obliterated; os uteri closed; vertex presentation; foetal heart sound doubtful; said to be heard by some of the examining physicians, by others not; no foetal movements observable.

Diagnosis: Pregnancy eighth month, with false labor pains.

Treatment: As patient was in good condition mentally and physically, and as there was a doubt about the foetus being dead, she was put on opiates hoping that the pains would disappear, and that the child, if alive, might be saved. Uremic poisoning being suspected, daily examinations, chemical and microscopical, of urine were made, but revealed no abnormality save a trace of albumin and a somewhat diminished quantity. There was an entire absence of fever.

On October 11th, the patient show-

ing signs of exhaustion, and the pains returning as soon as the effects of the opiates wore off, upon consultation, it was deemed best to induce labor and empty the uterus. Accordingly, at 7 P. M., after thorough antiseptics of genitals, instruments and glycerine. Pelzer's treatment was instituted, two and one-half ounces of glycerine (some possibly two to four teaspoonfuls was lost in the operation) being injected near fundus of the uterus, through No. 10 English gum catheter, which was plugged and allowed to remain. Labor pains, which already existed, soon became stronger and continued all night. Vaginal examination on the morning of the 12th revealed but little progress in the labor: the os uteri was open merely enough to admit one finger, and the foetal head presented low in the womb. The patient having passed no urine through the night, the bladder was catheterized and one ounce of bloody urine drawn: examination of same revealed some albumin and hemoglobin; a few bloody corpuscles but no casts. Pulse rapid and feeble; respiration accelerated; some nausea and vomiting. At 8 A. M., October 12th, second glycerine injection was given, 2 ounces and catheter left in situ. Labor progressed slowly throughout the day, although pains were strong, and patient was delivered of a dead foetus at 6 P. M., by forceps. Instruments were used on account of exhaustion of patient and powerless labor. Position O. L. P. After delivery, patient remained very weak and exhausted; was semi-comatose through the night; vomited dark material. Heroic stimulation resorted to—opiates, strychnine, ether and hypodermic injections of one pint normal salt solution, with rectal alimentation.

October 13th, morning: Patient

still weak and stupid: vomits often: tongue dry and coated brown: pulse rapid and feeble: temperature 102.6 F.: bowels moved freely by laxative enema: stimulants and nourishment kept up through the day. Evening: Patient weak but brighter: temperature 100.6 F.

October 14th, morning: Patient much improved: vomits less: takes nourishment and stimulants by mouth: pulse 96: temperature 97.6 F.: respiration, 20. Evening: pulse 100: temperature 97 F.: respiration 24.

October 15th, morning: Rested well through the night: pulse 104: respiration 20: temperature 98.2 F.: bowels acted freely during day. Evening: Pulse 100: respiration 20: temperature, 98: no vomiting to-day. (No reference being made to urine during 13th, 14th, and 15th. I take it, means no abnormality observed.—Author).

October 16th: Patient not so well today: vomits dark colored matter: occasional twitching of muscles: is delirious at times: skin itches intensely: urine scanty and high colored: contains one per cent. albumin: epithelium and a few blood corpuscles. Diuretic cathartics given.

October 17th: Patient much worse: in semi-comatose condition: has almost total suppression of urine: pulse rapid: weak and compressible: breathes in gasps, and breath has urinous odor: no vomiting: treatment continued.

October 18th: Patient has continually grown worse: pulse weaker: urine entirely suppressed: during afternoon about one quart normal salt solution given hypodermically: some improvement in pulse followed: hot pack applied. Patient died in the evening.

Autopsy, 17 hours after death: rigor mortis poorly developed.

Lungs very dark colored and contained large amount of venous blood.

Heart normal: no valvular lesion: no pericardial exudate.

Liver showed increase of fat: otherwise normal.

Spleen swollen and soft.

Kidneys swollen, congested, non-adherent capsule: fatty change in cortical substance.

Uterus enlarged, but contained no membranes or placenta.

Peritoneum normal: many ecchymoses on serous membranes.

Cause of death, acute nephritis.

Here we have the case of a healthy, strong and robust woman, working as a servant up to the very day she entered the hospital, with no flaw in her history save the injury received three weeks prior to labor, dying of acute nephritis following the intra-uterine injection of glycerine. The clinical history is so at variance with that of those dying from shock, entrance of air into the veins and circulation, or from metritis, the usual fatal results of vaginal and uterine douches that I cannot for a moment believe that death resulted from any of these causes. The only reasonable conclusion to my mind is that the method is at fault.

Up to this time, unfortunately, I had only learned of the favorable results of Pelzer's treatment. Further investigation into the literature of the subject revealed that others had also met with disagreeable effects. None of them so serious as in this case, but all of them of such a character as either to make the operator more conservative in his use of the method, or to cause him to abandon it altogether.

Dr. F. Pfannenstiel seems to have been the first to write upon the danger of these injections, reporting two cases that came under his observa-

tion in the Breslau Gynæcological clinic, in both of which he observed the most positive signs of the poisonous effects of glycerine upon the blood and of irritation of the kidneys. His first case was one of pregnancy with nephritis, in which the patient suffered so seriously from œdema and the functional disturbance of the heart and lungs, as to render an immediate emptying of the uterus necessary.

Pelzer's method was used, but the woman died eight hours after the injection, without labor pains being induced. This case should not weigh against the treatment, as the patient was probably hopeless. However, at the post-mortem examination it was observed that the kidneys and bladder were irritated by the glycerine and that the bladder contained bloody urine.

In his second case pregnancy with contracted pelvis, normal urine and health good, the injection of 100 c. c. m. of concentrated glycerine produced immediately severe labor pains, followed in one hour by obtunded sensibility, cynosis, fever 102 F., and slowing of the pulse. Urine drawn off an hour after the injection was of a blood red color. This persisted for twenty-four hours. Examination of urine revealed large quantities of albumin; some hyaline casts; no red blood corpuscles. Spectrum analysis showed methemoglobin and hemoglobin. Premature labor was induced by colpeuryuter. Child born alive. Puerperium without complications.

About the same time, Dr. Mueller reported from Von Winckel's *Clinic* the case of a pregnant woman with a contracted pelvis and very large goitre, where he injected one hundred c. c. m. of glycerine into the womb to induce premature labor. Ten minutes after the injection there was vomiting; the bowels acted; and

a rigor of one hour's duration occurred; with severe dyspnoea. The temperature mounted to 104.9 F., and the pulse to 156. Both dropped on second day. During labor and for a few days afterwards the urine was of a dark reddish brown color produced by the presence of methemoglobin and hematoporphyrin. Mueller adds that the method acted quickly, but the reaction was so trying that it appears clearly indicated that less glycerine should be used.

In our own country, I find a very interesting case reported by Dr. Oscar Embden, of Brooklyn, N. Y., wherein a pregnant woman suffering with nephritis and threatened eclampsia, he injected ninety c. c. of sterilized glycerine into the uterus to produce premature labor. Slight uterine contractions followed for three hours, when they ceased. Pulse rated lower from 78 to 50 per minute. Temperature normal. Six and one-half hours after the injection the woman was delivered of a living child by manual dilatations. Following the use of glycerine a large quantity of hemoglobin appeared in the urine, gradually disappearing twenty-four hours after delivery. The second day after confinement, a severe icterus set in, and the patient fell into a comatose condition, which continued for six days. Subsequent recovery gradual.

Here are five cases, including the one reported in this paper, all presenting evil effects of intra-uterine injections of glycerine for the induction of labor. While different organs—kidneys, liver, stomach, bowels, brain, nervous system—seem to have been occasionally effected, the kidneys suffered invariably. These symptoms can all be accounted for by the poisonous effect of glycerine upon the blood, decomposing, as it does, the red blood corpuscles.

Pfaumenstiel, as quoted by Embden, says that glycerine is liable to occasion decomposition of the blood, as Lichsinger, Schwan, Filchne, Lebedeff, and Wiener have demonstrated; and Afanessjew has shown, experimenting with dogs and rabbits, that the hemoglobinuria caused by glycerine brings on glomerule-nephritis, which is followed after the injection of more glycerine by interstitial nephritis as well as interstitial hepatitis. Each case presenting the bloody urine with its constant constituents.

Pfaumenstiel finds an explanation of the absence of accidents in Pelzer's cases in the fact that Schwan, Lebedeff and Filchne have shown that in rabbits, when the glycerine is brought under the skin, hemoglobinuria always occurred; but that it did not occur, or in a slight degree only, when it was injected directly into the veins. Without giving an explanation of this remarkable fact, Pfaumenstiel deems it possible that in Pelzer's cases, the glycerine was rapidly absorbed by the circulatory system, while in his case it acted in the decidua uteri as if it had been injected by the hypodermic method.

Whatever may be the explanation of the various effects of glycerine injections, in the hands of different operators, the identity of the poisonous symptoms in the five unfavorable cases presented in this paper is incontrovertible. Should, however, any further confirmatory evidence of the poisonous effects of glycerine be deemed necessary, beyond the experiments upon animals already quoted, we have it furnished by the surgeons, who a short time ago were injecting iodoform glycerine into various cavities in the body, but who now have abandoned the practice on account of the poisonous effects produced. Mikulicz as quoted by Pfaumenstiel,

says glycerine can induce poisoning when injected into absorbing tissues or cavities, and he has observed hemoglobinuria accompanied by methemoglobin appear in several cases in twelve to twenty-four hours after such injections, disappearing in twenty-four to forty-eights hours without reappearing. In one case, after curetting two periarticular abscesses of the hip, in a four year old boy, sixty grains of iodoform glycerine were injected, followed by severe hemoglobinuria and death in four days. The autopsy revealed acute parenchymatous nephritis œdema of the lungs and fatty degeneration of the liver. This, as you will observe, is almost the identical condition found in the autopsy reported by me in this paper. Since that sad experience, Mikulicz is said no longer to inject iodoform glycerine into absorbing cavities.

That glycerine used in this manner is poisonous and deleterious admits of no doubt. Clinical observations by obstetricians and surgeons, and experiments upon animals justify this conclusion. The method, then, should be abandoned and relegated to the past with those of Kiwisch, Schweighäuser, Cohen, James, and others. No degree of efficiency can justify the employment of means fraught with such terrible danger. But glycerine injections do not possess even the merit of certainty, as many operators, after using them, have reverted to other measures to effect delivery.

Pelzer, even, seems to be losing some of his enthusiasm.

In a recent article he admits that his method has not come up to expectations in all cases, and adds that he would like to see its application limited both in selecting the cases and in the amount of glycerine used. Further on, in the same article, he

says that the method should not be applied to women suffering with eclampsia or placenta prævia. I would like to add that it should not be employed at all: but least of all in cases with kidney complications. In the light of experience, it is inapplicable in constitutional or organic diseases of pregnant women: and, certainly, more effective and less dangerous means can be resorted to in pelvic contractions where an elective operation is permissible. But in objecting to any plan of treatment we may expect to be asked what can you recommend that is better? We answer cheerfully, that we think several methods are preferable: but the one par excellence to be selected, is the elective accouchement, or the "accouchement force," as it is frequently termed. But I will not take up your time discussing this method, as it has been recently as ably placed before the profession in a paper by Dr. L. M. Michaelis. This treatment alone takes into consideration the welfare of the child as well as that of the mother, and is incomparable in its results as a life-saving measure for both.

Glycerine injections sometimes produce very violent uterine contractions, and hence must be followed by a great fetal mortality. In fact, Pelzer himself says that large doses, such as one hundred c. c. m., are apt to destroy the life of the child in this manner, and that he believes such a result happened in one of his cases. In examining the thirty-three cases reported, I find thirteen children were born dead or survived but a few minutes, which certainly is a large mortality for an ideal operation.

To sum up the argument: Intra-uterine injections are often inefficient, especially so in doses under fifty c. c. m. They are liable to be followed by all the ill-effects—shock

air embolism, thrombosis nephritis, and sepsis—of other intra-uterine donches, which have been used and abandoned during the present century. They may and sometimes do produce "glycerine poisoning"—*i. e.*, decomposition of blood corpuscles, resulting in diseases of various organs, but more especially in nephritis with hemoglobinuria.

The method takes no consideration of the life of the child and hence results in great fetal mortality.

Its use should be abandoned, or the dosage reduced, especially in subjects with prior existing kidney affections. —*Medical Mirror*, Jan., 1896.

ÆTIOLOGY OF PEMPHIGUS NEONATORUM. By DOCTOR WALDEMAR PETER.

The generic name pemphigus comprises two groups of diseases which, regarded from both clinical and ætiological points of view, should be separated. The first group is made up of the chronic forms—gemine pemphigus in the sense of Hebra's definition, common chronic pemphigus, and foliaceous pemphigus. In the second group should be placed acute pemphigus (commonly attended with fever) and the benign pemphigus neonatorum. While there is nothing known with certainty respecting the ætiology of the first group, the acute febrile pemphigus, certain kindred species of multiform erythema, and other species merging into acute pemphigus, have shown themselves to be acute infectious diseases. Demme in 1886 demonstrated at the Congress of Internal Medicine a diplococcus in the vesicular secretion and in the blood, which he was inclined to believe the specific cause of the disease. Both Gust and Bleibtren cultivated from the vesicular contents and blood the *Staphylococcus pyogenes aureus*:

they were able to show, by means of colored preparations and pure cultures, the *Staphylococcus aureus* existent in the vesicles and blood of a patient at the Lassar clinic who was suffering from acute gangrenous pemphigus developed as a sequel to an intoxication from decayed venison. If, then, the acute pemphigus presented itself as a bacteritic inflammation of metastatic character, the ætiological nature of pemphigus in the new-born, commonly unaccompanied with fever, becomes less clear. Dohrn, who observed an epidemic of pemphigus neonatorum in the practice of a midwife, attributed it to mechanical injuries of the epidermis caused by clumsy handling during parturition, while Bohn assumed thermic irritation to be the cause of the formation of the vesicles.

Only within the recent past have observations been made which render probable a bacterial infection as the source of pemphigus neonatorum. Sterelitz and Almqvist were the first to cultivate the *Staphylococcus aureus* from the pemphigus vesicles, and to make positive inoculations. Trautenroth reports from Altfeld's clinic that pemphigoid vesicles formed in the neighborhood of the suppurating remnant of the umbilical cord, from which pure cultures of the *Staphylococcus aureus* could be obtained, as well as from the navel suppuration.

With respect to the mode of action of the micro-organisms found, these authors, as well as the text-books of dermatology and pædiatrics, are unanimous in the view that they are conveyed from the air to the skin through the bathing water, sponges, etc., and penetrate its cervical. These pathogenic germs have not yet been found in the blood pemphigus neonatorum, nor have they been sought there.

Recently I observed a case which

would seem to indicate that the infection of the skin in pemphigus neonatorum may be accomplished in the same manner as in acute pemphigus, namely, through the blood and lymph-channels. I was called to the wife of a local baker, who seven days before had been delivered of a boy without medical assistance, and who presented the signs of a severe septic infection. As the woman had been nursing her infant for five days and the breasts were filled full, she was permitted to continue the nursing and spare herself the pain. After four days the child presented, without appreciable disturbance of its general health, a vesicular eruption: first on the face and breast, then on the whole body; vesicles formed, varying in size from that of a pea to that of a half-dollar, and filled with a yellow serous liquid. A bacteriological examination yielded with glycerin-agar pure cultures of *Staphylococcus pyogenes aureus* and a diplococcus; further, the *Staphylococcus pyogenes albus* was to be found only in scattered colonies. As it has been shown by the investigations of Bumm, Longard, Escherich, and others, that without local disease of the mammae the pyogenic cause of puerperal sepsis may be conveyed through the milk, it was natural to regard the latter as the source of the child's infection. Disinfecting the nipple as carefully as possible, a specimen of the milk was placed on glycerin-agar. The result was a number of colonies, in which the golden yellow predominated, and the latter, judging by their appearance in the cultures and on the mounted slide, were identical with the *Staphylococcus pyogenes aureus*. In addition there were a lesser number of colonies of the *Staphylococcus pyogenes albus* and of the diplococcus also present in the contents of the vesicle; the latter was biologically

very similar to the one described by Demme. Finally, the inoculations made on glycerin-agar in there successive days with the blood of the child yielded positive results, whereas control inoculations made in the same room and under the same conditions with blood from the tip of my own finger left the tubes sterile. In the blood there developed along the inoculating band or stretch, principally, the diplococcus and the *Staphylococcus pyogenes albus*, whereas the *aureus* multiplied in but a few colonies.

The foregoing investigations accordingly reveal the same micro-organisms as provoke the development of acute febrile pemphigus. But it is not necessary to assume a specific virus to be the cause of acute pemphigus: it is probable that the most widely differing pathogenic organisms, circulating in the blood, after having metastatically reached the blood and lymph-capillaries of the skin, may there provoke, under definite conditions, those exudation processes which are designated as pemphigus. At the same time it is not impossible that the superficial lymph-channels may also be attacked by the infecting virus, penetrating from the navel wound or from superficial foci of suppuration (even from intertriginous parts denuded of epidermis) into the lymph-vessels and lymph-spaces, here progressing after the manner of an erysipelas and provoking more local disease. On this latter mode of development is based the observation of Trantentroth, who witnessed vesicular eruptions in the neighborhood of suppurating navel wounds, as well as the frequent occurrence of pemphigus vesicles on the abdomen and the upper thighs of children suffering from intertrigo in the inguinal region; also the formation of vesicles in the neighborhood of the inoculating puncture in the experiments of

Strelitz and Almquist.—*The Medical Age*.

A CASE OF UNDESCENDED OVARY AND TUBES, WITH SACTO-SALPINX PURULENTA PROFLUENS.
By M. L. HARRIS, M.D.

Mrs. D., from a neighboring state, came to me in February, 1895, and gave the following history: Age, thirty-seven years; American, widow. At the age of thirteen years she began to menstruate.

Menstruation was normal, with the exception that the pain was always quite severe until her marriage at the age of twenty-six. She had a child one year after her marriage and a second one a year and a half after the first. No miscarriages.

She is a well-developed woman, and, previous to her present trouble, always enjoyed good health.

Her illness dates back about seven years, when she was taken with severe griping pains in the abdomen, which was soon followed by vomiting.

There were two or three loose passages from the bowels, and then obstipation with considerable distention of the abdomen resulted.

The pain soon became localized in the right iliac region, where a distinct mass developed which was painful and tender, and which extended, according to her description, internal to and above the anterior superior spine of the ilium.

She had constant fever and was quite ill for about six weeks, when there was a sudden discharge of blood and pus per vaginam, after which she convalesced. She remained in fairly good health, with the exception of a little pain or soreness in the right iliac region upon exertion or straining, for about two years, when she had another attack similar to the first one.

These attacks recurred at varying intervals until the past year. For one year she has practically been ill all the time, having had five or six relapses during this time.

These attacks always began in the same manner. She had griping pain, gastric and intestinal disturbance, fever, swelling or tumor in the right iliac region, and was usually relieved by a discharge of pus through the vagina.

She had just recovered from one of these attacks when she consulted me. She was well developed, and physical examination was negative until the right iliac region was reached. Here a roundish, oblong mass was distinctly palpable. Its long axis extended vertically and crossed a line connecting the anterior superior spine of the ilium with the umbilicus. About one-third of the mass lay above this line, and the remaining two-thirds below it.

Bimanual examination showed the uterus to be normal in size and mobility. No exudates could be felt in the pelvis. The vaginal wall was everywhere free, and no cicatricial tissue or adhesions were discovered, such as one would expect to find where an abscess had repeatedly discharged itself through this channel. As there was no discharge of pus at the time of the examination, and as the patient had not been seen at the time the discharge occurred, its exact point of exit could not be determined.

The absence, as stated above, of cicatricial tissue or adhesions about the vaginal walls made it probable that the discharge came through the uterus from the Fallopian tube. The occurrence, however, of a pyosalpinx or sactosalpinx purulenta which periodically discharges its contents through the uterus is extremely rare, and according to Martin, of Berlin

(Die Krankheiten der Eileiter), the very few cases which have been reported recovered without operation. The clinical history, as given by the patient, corresponded very accurately with the history of chronic relapsing appendicitis. The periodical discharge of pus from the vagina seemed to favor a sactosalpinx purulenta profuens.

The mass corresponded so accurately in location and outline to such as are frequently felt in cases of chronic appendicitis, and the total absence on bimanual examination of pathological products in the pelvis, induced me before the operation to make a clinical diagnosis of chronic relapsing appendicitis.

A straight incision such as is usually employed for the removal of the appendix was made parallel to the right border of the rectus muscle and directly over the mass. Upon opening the abdominal cavity the caecum presented and was raised upward and displaced outward, thus bringing into view the appendix, which was quite diminutive in size. It measured but about three centimetres in length, was perfectly normal in appearance and free from adhesions.

It lay directly on the mass, which proved to be the right ovary and distended ampulla of the Fallopian tube. The mass presented the usual appearance of a sactosalpinx purulenta.

The dilated tube embraced the anterior surface of the ovary, and was firmly bound to it by adhesions.

The entire mass lay above the iliac vessels and entirely outside of the true pelvic cavity. The ovary rested on the psoas magnus muscle, its upper limit being opposite the bifurcation of the abdominal aorta.

The attachment of the ovary posteriorly, corresponding to the ligamentum infundibulo-pelvicum, was rather broad, and extending exter-

nally became continuous with the internal layer of the ascending mesocolon, and superiorly with the inferior layer of the mesentery of the lower end of the ilium. The ureter descended posterior to the ovary, and entering the pelvis, followed its usual course.

The ovarian artery entered the infundibulo-pelvic ligament at the superior and internal angle, and the pampiniform plexus spread out posteriorly and internally. The ovary was about normal in size and appearance and had no corpus luteum.

The ampulla of the tube was dilated to the size of an adult thumb and measured about eight centimetres in length.

The isthmus was much longer than normal, and extended across the pelvis to the uterus, which occupied its normal location. There were no adhesions about the cæcum, but this organ did not descend quite as low as usual. The left ovary and tube occupied their normal location.

The right ovary and tube were ligated off in the usual way and removed. The patient made an uneventful recovery.

This case presents two points of interest:

1. An undescended ovary and tube.

2. Sactosalpinx purulenta profusus.

As is well known, the ovaries and tubes in the embryo at first extend high up in the abdominal cavity: reaching as high as and even being overlapped by the lower end of the lungs. From this high position they gradually descend during the process of development until they reach the position within the true pelvis which they are found to occupy in the adult.

This so-called descensus ovariorum is not an active process on the part of the ovaries and tubes, but is due

rather to more rapid or, perhaps, better, a disproportionate development of the other neighboring parts of the body, until at the end of the developmental period, and the rearrangement of the relations of the various organs, the ovaries and tubes are found to occupy a much lower position, and one farther removed from the mid-line than at the beginning.

An arrest of development of neighboring parts, or the persistence of early forms, or the presence of unnatural adhesions of the ovary or tube, may lead to an arrest of the movements of these bodies at any point of their course, and thus bring about the condition of non-descent.

That the ovaries may be arrested in their descent at any point is a statement made by almost all authors treating of these organs: but it seems to be, like many another statement, simply copied and handed down from one author to another without any one producing evidence in the shape of a detailed case to support it.

The literature on this subject may practically be said to begin with the excellent monograph by Puech on *Anomalies of the Ovaries*, published at Paris in 1872. Unfortunately, the original of this valuable paper was inaccessible to me, but from abstracts of the article found in the *Rev. des Sciences Med.*, 1873, Verchow's *Jahresbericht*, 1873, and the *Dict. des Sciences Med.*, we learn that it contained the complete literature of the subject up to that date (1872), with a detailed report of all recorded cases.

These—some thirty-eight in number—are mostly anomalies of number, size, etc. Two cases, however, by the author himself, are anomalies of location, the ovaries being arrested in the lower lumbar region similar to the case here reported, and to which

Puech gave the name ectopie lombaire.

While this article may be said to begin the literature of the subject, it may likewise be said to practically end it, as little that is new or original has appeared since it. In quite an extensive review of the literature since 1872 I have been unable to find the report of a case similar to this.

Bland Sutton (*Brit. Gynecol. Jour.*, 1887-'88, vol. iii, p. 372) reports a case of non-descent of the ovary in an infant with spina bifida which survived its birth but a few days.

The abdominal cavity presented evidences of extensive peritonitis: loops of small intestine were glued together, and the descending colon lay high up under the liver, firmly adherent to the ventral aspect of the right kidney. The right ovary and tube were firmly fixed by stout adhesions just below the crest of the ilium.

Sutton suggested that perhaps the arrest of descent of the colon may have been instrumental in arresting the descent of the ovary.

This is the only case which I was able to find detailed, which will indicate, somewhat, perhaps, the rarity of the condition.

The second point of interest, the occurrence of a chronic purulent inflammation of the Fallopian tube, giving rise periodically to symptoms of acute peritonitis which disappear coincidently with a discharge of pus from the genital tract, is likewise rare, while the combination of an undescended ovary and tube with sactosalpinx purulenta profluens I have not been able to find heretofore recorded. — *The Times and Register*, Feb. 15, 1896.

OVARIOTOMY, WITH EIGHTY-EIGHT QUARTS OF FLUID: RECOVERY.

Reisfsnyder (*American Journal of Obstetrics*) describes two cases of

ovariotomy performed on native Chinese women in the Margaret Williamson Hospital, Shanghai: both patients recovered. In the first case the patient was 23: the tumor weighed 80 pounds. The second patient was 25 years of age: she married at 19, and soon afterwards her abdomen began to enlarge. She had never been tapped. She was 4 feet 8 inches in height, and the circumference at the umbilicus was 5 feet 7 3/4 inches. She passed about 16 oz. of urine in twenty-four hours, free from albumen: its specific gravity was 1026. Her appetite was good and the bowels acted once or twice daily. She had been unkindly treated as a sterile women unfit for domestic work. After numerous precautions, ovariotomy was performed. Chloroform was given: her head and shoulders had to be somewhat elevated: she took but little of the anæsthetic. Eighty-eight quarts of fluid were removed: the tumor consisted of one large and one very small cyst: there were free adhesions superiorly. The empty tumor weighed 6 1/2 pounds. There was no ascetic fluid in the abdominal cavity. The pedicle was long and about 2 1/2 inches broad. The abdomen was washed out, then the wound closed with twelve silk sutures. There was much shock at first. After the first day she passed urine voluntarily, and her bowels were moved forty-one hours after operation. On the second day there was flatulent distension, the pulse rising to 102 degrees. Rochelle salts were given. Her second night was the worst: she had two hypodermic injections of digitalin (1-100 grain), brandy by the mouth twice, one turpentine enema, and a capsule of turpentine taken by the mouth. Afterwards she did well. Her weight two months after the operation was 92 pounds.

HYDROZONE IN PURULENT OTITIS MEDIA. A REPORT OF A CASE SUPPOSED TO INVOLVE INFLAMMATION OF THE MASTOID. By WM. CLARENCE BOTELER, M.D.

On November 4, 1895, I was consulted at my office by Robert P——, aged twenty-four years; occupation, laborer in the Armour Packing Company. The patient complained that for about four weeks he had been suffering from intense pain in his left ear, making it impossible for him to sleep at night, or rest during the day. The pain was so severe that at times he apparently lost consciousness and it seemed to extend through his entire brain. Upon inspection, the man's face was found terribly deformed; an œdematous swelling the size of one-half of an ordinary loaf of bakers' bread occupied the usual location of the ear and the surrounding muscles. The auricle of the ear was almost buried in œdematous tissue; upon palpation, the part was found intensely tender, and deep pressure evoked expressions of excruciating pain. The integument and subcutaneous tissue were thoroughly infiltrated. Ichorous, fetid pus was slowly exuding from an almost imperceptible meatus. The patient expressed feelings of chilliness, showing a possible septic contamination of his system. Every indication and sign pointed to possible suppuration of the mastoid cells—tenderness upon pressure over the mastoid being very marked. Efforts to localize the tenderness, whether in external meatus or mastoid, for discriminating diagnosis, were unsatisfactory. I concluded to withhold a positive diagnosis as to whether the condition was purulent otitis media or suppurative inflammation of the mastoid, and used tentative treatment for a short while. I immediately placed

the patient under heroic doses of elixir of the six iodides internally. After laborious effort I succeeded in separating the œdematous tissue sufficient to admit the introduction of a small Eustachian catheter into the external meatus. Through this, with a small hard rubber syringe, I injected four times daily about one-half an ounce of hydrozone, allowing it later to drain away, advising hot fomentations. The patient was confined to his bed and the best possible hygienic surroundings provided. In twenty-four hours after the treatment was commenced, the intensity of the odor, amount and character of the discharge had manifestly lessened, the swelling was reducing and the patient feeling better. The œdema being lessened, the aperture was enlarged. I now recommended the injection of hydrozone through a catheter of larger calibre, every hour, requiring the head to be kept turned to the opposite side for ten minutes to allow the percolation of hydrozone as deeply as possible into the middle ear, before reversing the position to allow drainage. We continued this treatment for a week, the man's recovery progressing with remarkable rapidity, his pain and the constitutional symptoms having disappeared about the third day. At the end of eight days the swelling had entirely disappeared, his features were again normal, and he expressed himself as perfectly well. An examination showed a circular perforation in the ear drum the size of a shot, proving that the case had been one of purulent otitis media, with septic contamination of the patient's system, and infiltration of the surrounding cutaneous tissues. Small incisions were made at two different places to permit the exit of pus from the integument. The mastoid was found not involved. The rapidity with which the disease

yielded after the introduction of hydrozone through the catheter into the middle ear impressed me with the wonderful value of the preparation: for, struggling with such cases during a practice of seventeen years, I had never seen its efficiency equalled by any medicinal or operative procedures. —*Medical Bulletin*, Feb., 1896.

ARTIFICIAL ABORTION.

Garrigues (*American Gynecology and Obstetric Journal*, June, 1895) believes that the conditions which justify artificial abortion, apart from acute diseases, are especially serious are pulmonary tuberculosis, severe valvular, heart disease, aortic aneurism, carcinoma not amenable to radical treatment, chronic nephritis, severe affections of the nerve centres, and present or threatened insanity. Abortion offers two dangers—hemorrhage and septicemia. The evacuation of the uterus should be conducted, under anæsthetics, with every precaution. The cervix is dilated by means of conical hard rubber and expanding steel dilators until there is room enough at least for a curette, but if possible for a finger besides. The spongy endometrium should be removed thoroughly, as well as the fœtus and membranes. Garrigues scrapes as long as anything comes out. Before scraping, the uterus is washed out with creolin, and afterwards a quart of a 1 per cent. solution of that drug is passed through the uterus by irrigation. Drainage is not needed during the first two months: the vagina need simply be plugged for a day. Later the uterus should be packed with iodoform gauze, gradually withdrawn daily so as to give the uterus a chance of contracting well before the last of the packing is removed from four to six days after the operation. After the

end of the fourth month the measures used for induction of premature labor are indicated, especially dilatation of the cervix, introduction of a bougie, and packing of the cervical canal with iodoform gauze. No artificial abortion should be performed without a consultation report, signed by the consultants and kept by the operator.

TREATMENT OF SOFT SORES IN FEMALES.

Von Herff (*Monats. f. Geburts. u. Gynak.*, June, 1895) has found that the treatment of soft chancre involves certain difficulties in women, especially if the disease be treated as in males, the patients taking no rest. Iodoform is so disagreeable that the patients often neglect to apply it according to prescription. Even when it or any similar therapeutic powder is dusted on the chancre, urine lodging between the labia after micturition and, above all, free vaginal discharges rapidly decompose the chemical agent, neutralizing all the good which it can do and increasing any offensive property which it may possess. The best treatment is immediate cauterization with phenol. The genitals must be well cleansed with sublimate first. The "sore" will then appear to be made up of numerous minute ulcers, but some separate ulcers are often to be found far off. Hence, the search for the full extent of the disease must be conducted in a good light. Then each ulcer is touched with a concentrated solution of phenol (acid carbol, liquefact., P. G., almost the same as B. P.; see Squire's Companion, fifteenth edition). A small, thin piece of wood, made rough at the end, is the best instrument for the purpose. The edges of each sore must be well touched up. Dry wadding is placed

over the eschars. Hip-baths and weak antiseptic injections and lotions are then prescribed. About five days after the first application the parts must be examined. As a rule the sores will be found healing. Of

course any ulcer still active must be touched with the carbolic solution. If not too late, this treatment prevents the suppurating of inguinal glands without requiring enforced rest.

BOOK REVIEWS.

(All Exchanges and Books for Review should be sent to Dr. C. G. CUMSTON, 826 Beacon St., Boston.)

INFANTILE MORTALITY DURING CHILD-BIRTH AND ITS PREVENTION. By A. BROTHERS, B. S., M.D., etc. Philadelphia, 1896. P. Blackiston, Son & Co., Publishers. Price \$1.50.

The author of this book has covered his ground very fully and has given a very useful work to the profession. There are thirty-eight chapters, each one treating of a cause of death in particular, either due to the mother, the fetus or to labor, the last one treating of the prevention of infantile mortality.

THE INTERNATIONAL MEDICAL ANNUAL AND PRACTITIONER'S INDEX FOR 1896. Edited by a corps of thirty-seven department editors—European and American—specialists in their several departments. 728 octavo pages. Illustrated. \$2.75. E. B. Treat, Publisher, 5 Cooper Union, New York.

The fourteenth yearly issue of this valuable one-volume reference work is at hand; and it deserves the reputation which its predecessors have made for selection of material, accuracy of statement, and great usefulness. The corps of department

editors is representative in every respect, with one or two exceptions. Numerous illustrations, many of which are in colors, make the "Annual" more than ever welcome to the profession.

Part I. comprises the New Remedies, together with an extended Review of the Therapeutic Progress of the Year.

Part II. includes a number of recent articles by eminent authorities: How to determine the parasite of malaria; the diagnosis of toothache and neuralgia; the remedial value of cycling; sensory distribution of spinal nerve roots; angio neurosis; life insurance; and Roentgen's method of shadow photography, illustrated.

Part III. comprising the major portion of the book, is given to the consideration of new treatment. It covers 500 pages and is a retrospect of the year's medical and surgical progress.

The fourth, and last part, is made up of miscellaneous articles, such as recent advances in sanitary science; new inventions in instruments and appliances; books of the year; etc.

The arrangement of the work is alphabetical, and, with its complete index, makes it a reference book of rare worth.

DIETS FOR INFANTS AND CHILDREN IN HEALTH AND IN DISEASE. By LOUIS STARR, M.D., 1896. W. D. Saunders, publisher, Philadelphia. Price \$1.25

Every physician feels often the necessity of giving careful directions for the diet of healthy or diseased infants and children.

This little volume, of suitable form and size for carrying in the pocket, offers a most convenient basis for such directions.

The compact, convenient and clear arrangement of these detachable diet blanks, the simple, sensible suggestions on the diets, the wide latitude left to the individual physician's opinions, the valuable practical directions for the preparation of diluents and foods, these are among the elements that make the book a credit to its well known author and publisher, and a necessity to the busy practitioner who wishes to do his whole duty by each case.

DIAGNOSIS AND TREATMENT OF DISEASES OF THE RECTUM, ANUS, AND CONTIGUOUS TEXTURES. Designed for Practitioners and Students. By S. G. GANT, M.D., Professor of Diseases of the Rectum and Anus, University and Woman's Medical Colleges; Rectal and Anal Surgeon to All-Saints, German, Scarritt's Hospital for Women, and Kansas City, Fort Scott, and Memphis Railroad Hospitals, etc., etc. With two chapters on "Cancer" and "Colotomy," by HERBERT WILLIAM ALLINGHAM, F.R.C.S. Eng., Surgeon to the Great Northern Hospital; Assistant Surgeon to St. Mark's Hospital for Diseases of the Rectum, London. One Volume, Royal Octavo, 400 pages. Illustrated with 16 Full-Page Chromo-

Lithographic Plates and 115 Wood-Engravings in the Text. Extra cloth, \$3.50 net; Half-Russia, Gilt Top, \$4.50 net. The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street, Philadelphia.

This book is concise and complete, while it is so classified that it is very easy for reference.

Dr. Allingham's chapters on cancer and colotomy cover about sixty pages and are most excellent.

The figures and plates are new, and most of them are taken from photographs of the authors, Drs. Gant and Allingham. The book commends itself as a very clear guide to the practice of anal and rectal surgery, and will certainly be highly appreciated.

ELECTRICITY IN ELECTRO-THERAPEUTICS. By EDWIN J. HOUSTON, P.H.D., and A. E. KENNELLY, M.D., 1896. The W. J. Johnson Company, publishers, New York. Price \$1.00.

This neat volume of 375 pages is one of the Elementary Electro-Technical Series by the same authors. As the title of the series indicates, it is an attempt to state the principles of electrical science in simple and clear, and so far as possible, non-technical language. In this the authors have succeeded admirably. As electricity and magnetism are becoming more and more used in therapeutics, it is becoming increasingly important, that the physician should understand the principles which underlie the production and the application of these forces. Most of us have not the time, and few of us have the recent scientific training, to search for and mentally grasp the statement of these principles in the large works on elec-

tricity. To all such, this convenient hand book, up to date, and complete in all essentials, abundantly illustrated and well printed, comes a prize not to be estimated by the small price asked for it.

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tice but, likewise the best methods of instruction. Illustrations in black and colors will be copiously introduced and the work will be divided into two moderate-sized volumes, to promote to the utmost the convenience of hand and mind.

A TREATISE ON OBSTETRICS. By EDWARD P. DAVIS, A.M., M.D., Professor of Obstetrics in the Philadelphia Polyclinic, Clinical Professor of Obstetrics in the Jefferson Medical College of Philadelphia. In one very handsome octavo volume of 500 pages, richly illustrated.

Professor Davis' work will afford a convenient and compendious guide to the practice of obstetrics in conformity with the most modern development in that department. It will be suited to the requirements of practitioners as well as students. The rich series of illustrations will embrace a number of photographs of actual obstetrical scenes selected for the practical instruction most advantageously conveyed in this manner.

ANNALS

—OF—

GYNÆCOLOGY AND PÆDIATRY.

DEPARTMENT OF PÆDIATRY.

ORIGINAL COMMUNICATIONS.

Clinical Lecture Delivered at the Boston Dispensary, March 30, 1896.

HAROLD WILLIAMS, M. D.,

Professor of Children's Diseases in the Medical School of Tufts University.

[Reported by William Walker, M. D.]

CASE I.—PHTHISIS.

Bessie F., age eleven, American. You remember that this little patient came here, first, five weeks ago. Her mother told you that she had a short hacking cough which had lasted one year; that she was gradually losing weight and flesh, but that she did not raise any blood, nor did she complain of much pain.

Examination on that occasion (Feb. 24th) showed dulness at the apex of the left lung, and not very well marked, suberipitant râles. The breathing was more bronchial than at the right apex; the expiration was prolonged. Examination of the sputa gave five or six bacilli to the slide.

A diagnosis was made of pulmon-

ary tuberculosis. The prognosis was fairly favorable, though guarded.

Our treatment was:

(1) Hygienic—The patient must leave school and spend as much time as possible out of doors. Crowded assemblies or theatres, churches, street cars, etc., must be studiously avoided. The sleeping room must be airy and the patient must sleep alone. Instruction was given how to take deep inspiration and how to expire so as to expel the residual air, and expand the lungs as fully as possible, first in a natural position and secondly with the arms extended over the head. Attention must be given to the wearing of woolen clothing next to the skin and to daily sponging of the skin.

(2) Medicinal—

(a) Glycerin ext., bone marrow (Armour).

3i increased to 3ii t. i. d.,

(b) Sol. Fowler. grt, ii twice daily,

(c) Alcohol, wine or malt liquor—a little daily.

Each week you have noticed a gradual though slow improvement. Today considerable improvement is manifested. There is an unmistakable increase of flesh and roundness of the figure. The râles are less marked and coarser. Her weight is increased. The mother tells us that the child feels stronger, but is troubled with night sweats. For this latter symptom I shall prescribe Fraser's Rhinitis Tablets, 1-2 strength :

Camphor gr. 1-4, ext. Bellad. fl. min. 1-8
and Quinine sulph. gr. 1-4.

on account of the belladonna they contain: one tablet to be taken at 6 P. M., and one at 8 P. M.

The child must also be sponged with equal parts of vinegar and water.

CASE II.—CONGENITAL SYPHILIS.

Artinia G., age 3 mos., Italian, is brought for a catarrh from birth, sleeplessness, and constant crying. The mother was married at the age of fifteen: she does not complain of ill health. She has had two miscarriages of seven months, previous to the birth of this child. The father's history is unknown: he is twelve years older than his wife.

Examination shows an ill-nourished condition of the child, a sanious discharge from the nose producing

excoriation of the upper lip: the nasal bones are flat and poorly developed, on the thigh and nates are the coppery-colored remains, marks and cicatrices of a papular eruption. This eruption is also seen on the abdomen. The soles of the feet and palms of the hands are quite free from any indications, as also are the nail matrices. There is no change in the bony structures, the radial and tibial epiphyses showing no enlargement. The liver and spleen are normal.

This is not a well-marked case: but the probable diagnosis of hereditary syphilis must be made from (1) insomnia from birth, (2) sanious nasal discharge of 3 month's duration, (3) coppery cicatrices of a previous eruption and a papular eruption now seen on the abdomen. The mother shows no signs of the disease beyond the two miscarriages, which of course might be accounted for in other ways. The pains she refers to (behind the knees) are not diagnostic of syphilis, in which the pains are usually felt over the area of the tibia.

I shall mark a (?) in the record: treat the child for specific disease and note the result.

Treatment.—Ungt. hydrarg and ungt. petrolat. equal parts, dr. 1-4, placed on the binder every day, and then rubbed into the skin.

CASE III.—ERRORS IN FEEDING.

Female child, 4 months, Syrian, is brought for constipation, vomiting, sleeplessness, cough, and occasional fever of 3 weeks duration.

I take the temperature in the

rectum, as the most convenient method in the case of children, for the reason that you do not bother the child, you cause no pain or distress, and there is no danger of breaking the thermometer. You must remember, however, that the rectum has a relatively higher temperature than the mouth, owing to its being free from the currents of fresh air which are constantly entering the mouth.

The flexure of the thigh is also frequently chosen as a location for taking the temperature of children, but it is unsatisfactory owing to the child's movements. The temperature in this case is normal.

The cause of this train of symptoms is undoubtedly errors in the frequency of nursing. The mother states that she nurses the child every time it cries. I shall instruct her to nurse the child once only in three hours, whether it cries or not, giving her my reasons for doing so, namely, that if you put food into a stomach already half full of undigested matter, you arrest digestion and cause pain and then symptoms of dyspepsia. If I did not explain my reasons to her she would probably think it an unimportant matter, and would feel that she was a better judge of her child's needs than I am. I also name to her certain hours of the day as being the hours at which she must nurse her baby, as 6, 9, 12, etc., so that she will not be likely to forget them. It is often attention to these seemingly trivial details that constitutes a successful practice.

In many cases constipation will be

relieved by increasing the amount of fatty matter in the food. The milk of this class of women is very apt to be deficient in fats.

I shall prescribe cod liver oil emulsion combined with ex. cascarr. sagrad. fl. gtt. ii to the dose as a safe and effective laxative.

CASE IV.—NIGHT TERRORS.

Linwood F., age four, American, comes to us with a history of starting in sleep, screaming, the eyes staring and face twitching, the whole train of symptoms denoting extreme terror, whilst no persuasion or soothing has any effect. He continues in this condition for ten or twenty minutes. He afterwards describes fearful visions and hallucination.

This is night terror, and like some forms of convulsions and laryngismus stridulus (the emergency cases of childhood) is a neurosis and like other neuroses in children, is made up of a series of aetiological factors. The exciting causes in many cases are over-eating, indigestion, intestinal parasites, adherent prepuce, etc.

It is best treated with bromides, and I shall prescribe potass. bromide gr. v. to be taken at bedtime. Heavy suppers must be interdicted; the last meal to consist of bread and milk, baked apple, or a little molasses and bread, etc. He must play in the open air a good deal. At the same time I give him a tonic, as neuroses in children of the class we see at a public clinic are generally associated with anæmia.

You noticed that I examined this

child's throat. It was not necessarily to discover a cause of the trouble for which he was brought here. I make it an invariable practice (and cannot too strongly urge upon you the importance of this) to examine the throat of *every* child which is brought to me. Apart from the danger of overlooking the very trouble for which the child is brought to you, diphtheria may occur as an intercurrent disease. I have known of several cases where a child was being treated for a sub-acute or chronic trouble, in the course of which diphtheria developed, was unnoticed, and the child died practically untreated. In such cases the physician is often justly blamed.

CASE V.—PERTUSSIS.

Male child, aged seven. American.

A history of a paroxysmal cough during four weeks, occurring chiefly in the night, each paroxysm lasting one or two minutes, and followed by vomiting, points almost conclusively to whooping cough. The one diagnostic feature, the "whoop," the pro-

longed, forcible and noisy inspiration followed by a series of spasmodic expirations, with which you are all familiar, we have not had an opportunity of hearing whilst the child has been in this room. You have, however, heard it on several occasions during this course of lectures, and are not likely to mistake it for anything else. As I have told you, the whoop, though entirely diagnostic when it occurs, is not absolutely essential. I have known of many cases of pertussis, proved to be so by the infection of others and subsequent immunity of the person himself, wherein the whoop did not occur at all during the course of the disease.

I shall treat this case as usual with phenacetin gr. 1 to be given at bedtime and repeated during the night if necessary; and with emuls. ol. morrhue and iron as a general tonic. Spraying the larynx and pharynx three or four times a day with a one per cent. solution of resorcin is useful in some cases.

REVIEW OF PÆDIATRY.

SCHOOL CHILDREN'S EYES.—A
PLEA FOR THE EXAMINATION OF
EVERY CHILD'S EYES WHEN
COMMENCING TO ATTEND SCHOOL.
By W. F. SOUTHARD, M.D.

Looking over the annual report of the public schools of the city of San Francisco for the year 1895, I find that there was an average daily attendance of 31,002 pupils between the ages of five and seventeen. Of this number 69.63 per cent. were in the primary grades. This includes all children between five and ten years of age; 26.06 per cent. were pupils in the grammar grades, while but 4.31 per cent. were high school pupils. These pupils, between say the ages of ten and seventeen, were divided between the grammar grade and the high school. I wish to emphasize the point that, though this does not state the total enrollment of pupils, it does very correctly give the daily attendance throughout the year. An analysis of these figures will give us some very important results. In the first place, you will observe that from the primary grades over one-half, or 50.43 per cent., fail to enter the grammar grades. These children at this time are about ten years of age. At the close of the grammar grades 71.68 per cent., or more than three-fourths, fail to enter the high school.

Finally, to show more vividly the enormous decrease of school attendance between the tenth and seventeenth years, we learn that there is a total loss of 96 per cent. as between the primary school attendance and

the high school attendance. Let us see if we can discover the cause for such a tremendous variation in attendance between the three departments of our public schools. We shall find, I think, that not only one, but many circumstances, conspire to bring about these results. The average person will be very likely to say that removals, deaths, sickness, and discouragement ought to be a sufficient explanation. I am sure that a more thoughtful examination into the causes will convince us that not only the above mentioned, but other reasons, exist for such a condition of affairs. To my mind this fact is a cause for greater surprise and alarm than that but 4 per cent. of our primary pupils reach the high school, insignificant as is that number. At the age when pupils enter the high school, a very large number are withdrawn to become wage-earners; they must assist in providing for the family. A very large percentage of the parents of these pupils think that completion of the grammar grade is all that their children need to fit them for all ordinary vocations. But this cannot be the case at ten years of age, for the percentage of permanent bread-winners of ten to twelve years of age must be very small in this state.

We find on examination—that is, by questioning teachers, superintendents, and those who are daily brought into contact with children—that the number dropping out became of their inability to keep up in their studies must be very large. It is possible that, as we examine this particular cause for loss more carefully, we may

discover the very material we are after by which our proposition may be maintained. I have held for some time in my arguments with educators that if curves showing the mental capacity of a thousand children of the same age could be drawn, they would show but a very slight variation, one side or the other, from a given mean. I believe that we shall find that the brain capacity of our children can be measured with as good results as we have obtained in other branches of anthropometry, a study which has been brought to a very high degree of accuracy. For example, Professor Bowditch, of Harvard University, Professor Gihon, of Annapolis, and Professor Hitchcock, of Amherst, have together measured some 40,000 persons between the ages of five and twenty-five; the design being to show the rate of growth of the body for the different ages. From these measurements a certain mean standard of physical development, height, weight, chest measurement, length of body sitting and standing, etc., to which the great majority nearly attain, has been found. The deviation above or below this mean is found to be about the same.

That there is a tacitly recognized uniformity in brain capacity, powers of comprehension, and general intelligence among children of the same age is proved by the fact that school-books have been prepared, hours of study, and the studies themselves arranged to meet this. We may question the wisdom of making text-books on such a rigid plan: we cannot deny the facts. It follows, therefore, very clearly, it seems to me, that very nearly equal results should be attained by the great majority of pupils. If this is not true, then there can be no law governing our intellectual powers. If, then, we find in the same grades at school a very

wide departure from the standard, we must conclude either that the general standard is too high, or a very large percentage of our children have some disability. Why should so many children become discouraged? Their work is not particularly difficult, their hours are comparatively short, and in the primary grades they are not expected to study at home. Ill health is an important factor: thousands of children are already invalids before going to school: inherited weak constitutions, impoverishment of bodies from deficient or unwholesome food, bad hygienic surroundings at home, all unite to handicap such children in school-work. The stooping forms, eyes bent close to the desk before them, the shuffling walk, the notched teeth, thin faces, and other physical defects are to be seen every day and in every primary school. If we examine this class of children, we find that they have in nearly every case marked deficiency in visual acuteness. We cease to wonder that such pupils cannot compete in the struggle for an education.

There is, again, a large percentage who fall out of the ranks from among the apparently healthiest and brightest children. For a term or two they may have no trouble, but later on they drop behind, when they in turn become discouraged. We are able to positively state that they have no impoverished bodies, that they have always been well, and have never complained before going to school. As they fall behind their class-mates, they are called mischievous, stupid, and other epithets of like character are bestowed upon them. Many of these children come home every afternoon complaining of headache, or, if they have no headache, they complain of feeling tired, they get listless, and hang about the house. They are being constantly corrected for not

paying attention. In fact, one of the most frequent complaints from teachers is that such children never look upon the work before them more than a moment or two at a time. They are being constantly diverted to whatever is going on about them. It is needless to ask what is the outcome of this condition: the teachers get impatient and become constant fault-finders, the child gets discouraged, and the parents in many cases become dissatisfied and remove their children from school. It is among just such material as this that we find the evidences which confirm us in our theory that there can be but one way to treat this whole subject. We find that the very largest proportion of these children have errors of refraction or some disturbance of the visual organ. We find also on looking into the matter more closely that the school environment is not of the best: school rooms are imperfectly lighted in most every case: the proportion between windows and floor-space is less than the standard. Many rooms are so situated as regards light that they cannot by any means get good direct light. But too often the best light in the school-rooms is a reflected light from some adjoining high building. Such a light is most injurious to the eyes and to the nervous system. Then there are the questions of heat and ventilation, serious questions, too. The improper seating of the pupils at their desks and the character of the seats themselves, are in too many cases the cause of permanent injury to the growing child. Poorly printed books and poor paper have much to do with strain upon the eyes. Though much has been attempted to remedy some of the most evident of these defects, we cannot but feel that the rights of the child have not been considered when we let contracts for building school-

houses. Politics govern our school system, in most places, to too great an extent. We spend money enough to get the very best results: it is, however, becoming evident that the enormous sums are most unwisely spent. Each of these points just mentioned needs more discussion than can be given at this time. Given these imperfect surroundings, together with some defect of vision, and we have a combination which must sooner or later be detrimental to the child, physically or mentally. Is it any wonder that he has no concentration?

In pursuing this subject of our public schools a little further, we have to note that in the primary grades there was enrolled at the commencement of the year a number equal to thirty-two and thirty-five hundredths in excess of the number in regular attendance. They mostly dropped out during the first two or three weeks of school. Such a number of units thrown upon the community unable to read or write must become in time a serious burden upon it. I am most firmly convinced, from personal observation, that poor eyes must be a leading factor in causing this great loss. A law compelling a rigid examination of the eyes of every child when he begins to go to school would seem to be demanded. Let every child come to school bearing a certificate stating the exact condition of its eyes. By such means the teacher will be put in possession of facts which will be of inestimable use to him and to his pupils. A plan so simple ought to commend itself to every physician, to every educator, and to every parent.

Having shown the intimate relationship existing between imperfect eyes and lack of power to apprehend, a long step forward has been taken. Statistics have been made of many thousands of school-children in

Europe and America, by a large number of competent observers, during the past twenty years. An examination of these results most clearly shows that there is a most intimate connection between education and defective vision. It has been proved that myopia (that form of defect to which all eyes tend) exists in but 1 per cent. of the primary scholars in country districts. This is due to obvious causes: country children go to school a less number of hours daily, or if they attend, less is expected of them. They also attend a less number of weeks during the year, and they read or study but little at home. An examination of the city schools shows at a glance a different condition of affairs. Myopia is found in these schools in far greater proportion. As we ascend from grade to grade, from primary school to grammar school, from grammar to high school, from high school to colleges and universities, up to the highest institutions of learning, myopia is found ever on the increase, until in the very highest schools in Germany over 90 per cent. have been found myopic. In other words, it is now an accepted fact that myopia is a product of civilization, one of the results of our modern methods of education. It is not our purpose to discuss these methods in this paper, simply to draw your attention to a fact now generally accepted.

Having shown that there is this relationship between myopia and education, it may be said that this does not account for the first proposition, viz., that such a vast percentage of pupils drop out of the ranks at the early age of ten years. At ten years of age myopia has been found even at its maximum to be only ten per cent. Myopia, then, cannot alone be a sufficient cause for so great a loss at so early an age. This is very true,

but myopia is not the only error of refraction causing disturbances. It has been very satisfactorily shown that all infants are born hyperopic. We may also assume that a very large percentage are born astigmatic; of these probably seventy-five per cent. have hyperopic astigmatism. From five to fifteen years the child's body is developing most rapidly. A greater amount of nutriment is now being taken in proportion to its weight than by adults. Tissue-changes are taking place in a most rapid manner. Physiologists claim that during these years a large part of the twenty-four hours should be given to body-building by means of sleep, food, and exercise. The visceral organs, for example, may be altered by too great and too continuous compression. It needs no philosopher to tell us that we must expect more or less alteration in the shape of the eyeball from too great and too continuous use of the eye at the near point. If we admit that this may take place in the so-called normal or emmetropic eye, how much the more likely are changes liable to follow over-use when the eye is in its undeveloped stage? We know that the ciliary muscle of the hyperopic or undeveloped eye, from its very nature, must be in a constant state of activity during all the waking hours. At the far point as well as the near point the effort is being constantly made to force the rays to a focus upon the retina. This effort means strain, and the strain means disturbance of the nervous system. The effort to maintain visual acuteness by the expenditure of force upon the ciliary muscle is not the whole story. According to the degree of hyperopia there is a change in the angle, "alpha," which means that the attempt to maintain binocular vision must be attended with expenditure of force, and this often leads to strabis-

mus. This proposition brings us to the point I am to make, viz., that children's eyes are from their very construction just the sort of eyes which will cause the greatest discomfort from over-exertion. The two factors, the attempt to produce visual acuteness by forcing the ciliary muscle to powerful contractions, and the effort to maintain binocular vision by forcing the extra-ocular muscles, is liable to produce varied and peculiar symptoms upon the nervous system. I assert, then, that those children having hyperopia and hyperopic astigmatism are the real sufferers. Their constantly nagged nervous apparatus tends to become wearied to the extent that they cannot give close attention to the work before them. They must look up often to rest their wearied muscles. Therefore, to expect continuous application and good attention is most unreasonable. That such children may lose interest in their school work on account of the difficulties surrounding them we can readily understand. We could, did space permit, show that these imperfections may have a very marked effect in the development of the child's character.

In my examination of the eyes of the students of the University of California, for the past five years, I found that the percentage of refractive errors was sixty-eight per cent. Of this number only six per cent. were myopic. In a detailed analysis of 1300 errors of refraction I have shown that seventy-five per cent. were hyperopic in some degree. I found in looking over the list of symptoms attending these cases that pain of eyes, headache, muscular spasms, and nervous symptoms generally were confined to this class of cases. The myope but rarely complains of anything more than inability to see at a distance.

It is not to be denied that myopia is greatly to be dreaded: since it cannot be stayed in its progress in many cases, even though corrected with glasses. We are willing to believe that it is the end toward which a vast proportion of eyes tend when over-worked. We claim, however, that our sympathies are rather to be directed to the youthful hyperope. Could we but examine every case during the first few years, we would not be sending to our universities young men and women with eyes just ready to break down. The remedy is examination and constant watchfulness. We must bear in mind that the tremendous waste unnecessarily taking place through the effort to work under the disadvantages of a refractive error is not easily measured. Individual suffering and loss of power to work may cause great material loss. From this cause the community has to be taxed to support asylums: from this cause many eyes tend towards disease and ultimate blindness. These are among the possible results of neglect on our part to do our whole duty. We may build asylums for the blind, we may do everything possible to remedy the defects already existing, yet, unless we go down to the very foundation of the trouble and alter existing causes for disturbance, we shall in time have as great a percentage of spectacled beings as is now seen in Germany. Remember that this is an age of conservation of energies, not waste. — (*Journal of the American Medical Association*).

INFANT FEEDING. By A. JACOBI, M.D.

In the last decade great and successful strides have been made in medical therapeutics as well as in surgical. The former have been improved partly through the aid of

pharmaceutical preparations and of the products of biological research, partly through new methods and appliances for hygienic and preventive purposes. It is mainly the infectious diseases which have been served by the former, and both public and individual hygiene by the latter. Early life has been particularly benefited, and by nothing more than by careful endeavors to improve the diet of the young, and thereby to remove the dangers of intestinal disorders and the sources of excessive mortality.

Sterilization.—Nothing has been more successful in that direction than the widespread practice of sterilization (and pasteurization) of cow's milk. Both are the logical development of the plan of treating milk by boiling, which I persistently advised these thirty-five years at least, and detailed in my "Infant Diet," in Gerhardt's Handbook, in Buck's Hygiene, in "Intestinal Diseases of Infancy and Childhood," and in my clinical lectures delivered during the last third of a century.

Now what is it that boiling can and will do? Beside expelling air it destroys the germs of typhoid fever, Asiatic cholera, diphtheria and tuberculosis, also the *oidium lactis*, which is the cause of the change of milk sugar into lactic acid and of the rapid acidulation of milk with its bad effects on the secretion of the intestinal tract. Some varieties of proteus, and most of bacterium coli, are also rendered innocuous by boiling. Thus it prevents many cases of infant diarrhoea and vomiting—not all of them. For the most dangerous of all the bacteria are not influenced either by plain boiling or the common methods of sterilization. Besides, "diarrhoea" is but a symptom of many causes, and "cholera infantum" is a name for a condition occasioned by

many. Elstein emphasizes the fact that babies at the breast are subject to cholera infantum, particularly in southern climates, also in public institutions. The influence of external temperature is a very important factor: its sudden changes produce intestinal disorders. Babies, taken from a hot railroad car to the deck of a lake steamer, from a warm bed to a draughty room, may develop a catarrhal enteritis which disposes to worse forms of disease. For the morbid condition of the epithelium caused by such sudden changes is a proximate cause of disease, because it opens the way to all sorts of infecting substances. Poisons in the food of cows, indigestible baby foods—either indigestible *per se*, or through a morbid condition of the digestive organs—produce diarrhoea of many varieties. It need not even depend on ingested food: for according to W. Schild's recent investigations (Zeitsch. f. Hyg. u. Infect XIX.) germs of diseases may be found in the intestine of the newly born in from ten to seventeen hours after birth (min. 4, max. 20). The meconium of the newly born being free of germs, is supplied through the mouth with the bacterium coli and through the anus with the bacillus fluorescens, subtilis and proteus (even adults are infected through the same inlet). Linen, the bath, the air, the blood, are sources of local invasion. In such cases, what is the sterilization of artificial food to accomplish? They are not reached by it.

Not even the natural food, breast-milk, is free of germs possibly attended with dangers. M. Cohn and H. Neumann found germs in the healthy breast-milk even after the mammae and nipples had been washed with alcohol and with solutions of corrosive sublimate. A. Palleske met with the staphylococcus pyogenes

albus in one-half of all healthy women, F. Honigsmann (Z. f. Hyg. u. Inf. XIV) in most of them, and H. Knochenstein (Inaug. Diss. 1893) in the mammae of eight puerperal and nursing women. Evidently they had immigrated from outside: they proved innocuous. But who can doubt but that if the epithelium of the milk ducts had been morbid, there would have been a chance for a mastitis, or if the staphylococic milk had got into contact with a sore stomach or intestine, there would have been an opportunity for gastritis or enteritis.

Nor is boiling, nor sterilization, a safe protection under all circumstances. Aerobic bacteria, the so-called hay or potato bacilli, with very resistant spores, which are found in cow dung and in the dust of stables, of the soil and streets, and of hay, peptonize casein and liquefy it and render the milk bitter. They are very poisonous: their pure culture gives young dogs a fatal diarrhœa. It takes hours of sterilization to kill them: in some instances it required five or six hours. Even the bacillus butyricus takes an hour and a half. But such a protracted sterilization, beside being far from certain in its effect, is at all events a clumsy procedure and one not calculated to benefit the milk. Thus hay feeding is an absolute necessity, for the bacilli are destroyed by a six weeks' drying. Besides, it is urged to keep the stables carefully clean, to avoid dirt and dust, to employ peat instead of straw for bedding, to wash the udder and tie the tails before milking, to waste first milk, and to remove foreign material from the milk by centrifuging. But no absolute security can be guaranteed. That is why Flügge adds to his expositions a warning against some wholesale manufacturers who, always anxious about somebody's—their own—welfare, are

known to conceal by coloring the glass of their bottles the changed condition of the milk and the separation of butter particles.

Whatever I have here brought forward, is certainly not to disparage the boiling of the milk: it is meant to prove the danger of relying on a single preventive when the causes of intestinal disorders are so many. It is true, however, that the large majority of the latter depends on causes which may be met by sterilization: but not by sterilization only: also by pasteurization, that is, heating the milk to $70^{\circ}\text{C} = 165^{\circ}\text{F}$. and keeping it at that uniform temperature for thirty minutes—a procedure which destroys the same germs that are killed by a more elevated temperature, without much change in flavor and taste.

One of the questions connected with the employment of sterilized or pasteurized milk is this, whether the milk to be used for a child ought to be prepared at home, or whether the supply may be procured from an establishment where large quantities of milk believed to become immutable by sterilization for an indefinite period, are kept for sale. In regard to this problem Flügge plaintively expresses his regrets that "we have allowed ourselves to be guided by people who are neither hygienists nor physicians, but chemists, farmers, or apothecaries, and whose actions have been based on three false beliefs. Of these the first is that boiling for three quarters of an hour destroys germs, the second that whatever bacteria remain undestroyed are innocuous, and the third, that proliferating bacteria can always be recognized by symptoms of decomposition." Nothing is more erroneous. Soxhlet himself, the German originator of sterilization, knew at an early time that the fermenting process is now and

then but partially interrupted by boiling, that butyric acid may be found in place of lactic acid, that a strong evolution of gas may be caused after such boiling, and that such milk may give rise to flatulency. Aye, milk which happens to contain the resistant spores of bacteria becomes a better breeding ground for them by the very elimination of lactic acid, and the longer such sterilized milk is preserved and offered for sale, the worse is its condition. It may be true that these conditions are not met with very frequently, but an occasional single death in a family caused by poisonous milk will be more than enough. Therefore, the daily home sterilization is by far preferable to the risky purchase from wholesale manufacturers who can not guarantee, because in the nature of things they cannot know, the condition of their wares.

Another alteration of a less dangerous character, but far from being desirable, is the separation of cream from sterilized milk which is preserved for sale. Renk (Arch. f. Hyg. XVII) found it to take place to a slight extent during the very first weeks, but later to such a degree that 43.5 per cent. of all the cream contained in the milk was eliminated.

Sterilization has been claimed to be no unmixed boon because of its changing the chemical constitution of milk. Still, the opinions on that subject vary to a great extent, the occurrence of changes being both asserted and denied by apparently competent judges. But what I have said a hundred times, is still true and borne out by facts, viz.: That no matter how beneficial boiling, or sterilization, or pasteurization, may be, they cannot transform cow's milk into woman's milk, and that it is a mistake to believe that the former, by mere sterilization, is a full substitute

for the latter. It is true that when we cannot have woman's milk, we cannot do without cow's milk. There is no alleged substitute that can be had with equal facility or in sufficient quantity. But after all, it is not woman's milk. Babies may not succumb from using it, and may but seldom appear to suffer from it; indeed they will mostly appear to thrive on it; but it is a makeshift after all and requires modifications. Hammarsten was the first to prove the chemical difference between the casein of cow's and woman's milk. Whatever was known on that subject at that time I collated in Gerhard's Handb. d. Kind. 1st Vol. 1875. (2 ed. 1882). But lately Worbleski demonstrated the difference in solubility of the two milks. Woman's casein retains during pepsin digestion, its nuclein (proteid rich in phosphorus) in solution, it is fully digested: in cow's casein the nuclein is not fully digested, a "paranuclein" is deposited undissolved and undigested. Besides, woman's casein contains an additional albuminoid which is not identical with either the known casein or albumin. (H. Koplik in *N. Y. Med. Journal*, April 13, 1895.)

Ergo: Cow's milk is not woman's milk. It is not identical with it. Sterilization does not change its character. It merely obviates such dangers as result from the presence of pathogenic germs, and from premature acidulation. The substitution of cow's milk, or of sterilized milk for woman's milk as the *exclusive infant* food is a mistake. Experience teaches that digestive disorders such as constipation or diarrhoea, and constitutional derangements such as rhaehitis are frequently produced by its persistent use, and it appears to be more than an occasional (at least coöperative) cause of scurvy.

Admixture of Cereals.—Since the advisability of finely dividing and suspending the casein of cow's milk and of adding to the nutritiousness of the latter caused me always to teach the admixture of cereals to it, even in the very first days of infancy, the subject of infant feeding has never been lost sight of by medical men, pure scientists and tradesmen. No subject has been treated more extensively, more eagerly, sometimes even more spitefully, than of infant feeding. The philosopher's stone has not been so anxiously sought for, nor been so often found in medical journals, books and societies, as the correct infant food and the appropriate treatment of cow's milk. After the finally faultless thing had been discovered very many times, it was therefore not a surprise but a source of gratification to me to meet, in the *Berl. Klin. Woch.*, No. 10, 1895, an article of Henbner's, who, after having contributed for years as much as any writer, if not more, to the literature of the subject, recommends the "utilization of flour in the intestines of young nurslings." Basing his remarks firstly on the researches of Schiffer, Korowin and Zweifel (quoted in my early writings on that very topic more than twenty years ago), who by experimentally proving the digestibility of a certain amount of starch in the saliva (and pancreatic juice) of young infants, justified my empirical findings of many previous years, and secondly, on what he is pleased to call "Jacobi's practical experience,"—the Berlin physician recommends in intestinal diseases of the very young the simplest flours, mainly of rice and oats (which have a finer microscopical structure than wheat). He pointedly adds: "very young infants do better on a dilution of milk with a thin rice decoction than with mere milk sugar

solution. Practical experience surpasses theoretical conclusions." There is but one point in which the famous teacher does not yet agree with me, for in his expositions we meet with the remark that he "cannot approve of the colossal dilution recommended by the authority of Jacobi." The "colossal dilution" alluded to is that of milk in 4 or 5 parts of oatmeal or barley water for the use of the newly born. In regard to this dilution also I trust I shall see my illustrious colleague siding with me yet. The demands of pepsin digestion, and of rapid growth and of the necessity of restitution of losses experienced by eliminations and excretions are just as many reasons for extra allowances of water in the diet of very young infants who have to rely on the services of others. Older children know how to find it and how to serve themselves. In addition, it is certainly true that a large amount of water passing through the kidneys removes the inconveniences and dangers of the peculiar physiological process which takes place in the first three weeks of every life, viz., uric acid infarctions, the results of which are gravel, renal calculus (by no means rare) and nephritis. Indeed, since the rather frequent adoption of my plan of supplying the very young with quantities of water, I hear less of renal complaints in them than I did dozens of years ago.

Perhaps the tide is beginning already to turn in my direction. Norbert Auerbach, whose researches on the difficulty of destroying the hay bacillus and the bacillus butyricus are very meritorious, recommends larger percentages of water in infant feeding than the customary ones. His mixtures for the first and second months of life are three parts of water and one of milk: for the third and fourth, two and one:

for the fifth and sixth, one and one : for the seventh and eighth, one and two. His figures are, therefore, not exactly like mine, but even they may appear heretical to my critic. In connection with this subject I am also pleased to state that Auerbach agrees with me on another subject. The sugar he adds to the milk food of infants is not milk sugar, but cane sugar, of which he gives twenty grammes daily, and, also according to my old teaching, more during constipation. He prefers cane sugar undoubtedly for the reasons which guided me in my recommendations, though it is true that milk sugar is being stripped of its dangers in the same degree as boiling, sterilization or pasteurization are carefully practiced.

Virtually, sterilization has been practiced by me these more than forty years, and has been taught by me these thirty-five years, both in lectures and in books and essays. My method has been referred to. I always urged that safety increased with the number of boilings. Still even lately New York gentlemen have been pleased to say, and one of them has printed, though he was told of his mistake before printing, that Jacobi was an opponent of sterilization.

Actual sterilization according to Soxhlet was introduced in New York by A. Caille. Then, manufacturing firms took it up as a matter of course. One of them was prevailed upon by me to execute a device of Dr. A. Seibert, who advised the determination of the amount of sterilized food, and the graduation of the feeding bottles, according to the weight of the infant. In most cases this plan is good, for the condition of the child can mostly be measured by the increase of its weight. Only fat, clumsy, rachitical children make an exception : in them the rapid increase

of weight is rather a morbid condition than a symptom of healthy development. Besides, he improved his food by adding, in conformity with my practice and sterilizing at the same time with the milk, either barley or oatmeal water. A recommendation of his sterilizer is its cheapness, which makes it more accessible to the poor. His plan—developed later—to filter milk before sterilization, is identical with that recommended by Auerbach.

The writings and practical instruction of Dr. Rowland Godfrey Freeman have been a great advantage to New York, particularly to its poor population. He insists upon pasteurization as a sufficient method of safety. As the adviser of Mr. Nathan Strauss in his successful endeavors to supply thousands with a safe article of food, he has benefited the city and aided in setting an example which should and will be imitated.

Modified Milk.—Pasteurization is also employed by Rotch. In a paper read before the American Pediatric Society at Boston May 4th, 1892, he presented amongst others the following statements, which I gladly repeat as I know his teachings to have done a great deal of good. Indeed, I was so much impressed by them that I encouraged the gentleman who had conducted a milk laboratory on Dr. Rotch's plan in Boston to establish a similar institution in New York. Some of Dr. Rotch's lucid statements are as follow :

“What the profession needs is the knowledge that they may have milk laboratories where the materials are clean, sterile, and exact in their percentages. Slight changes in the three elements of the milk, of which we have the most accurate knowledge, namely, the fat, sugar and albuminoids, are of real practical value in managing the digestion and nutrition

of the infant (normal percentage in milk of fat 2.02-4.37, of milk sugar, 5.70-7.10, of albuminoids 1.08-3.07, of mineral matter 0.12-0.20.) The digestive capabilities of infants differ, just as those of adults, and nature, therefore, provides a variety of good breast-milks adapted to the individual idiosyncrasy of the special infant. With this fact impressed upon us, we can well see that in artificial feeding no routine mixture will, in all cases, prove successful. We are in need of a means by which we can prescribe exactly according to the idiosyncrasy of the digestion we are dealing with."

"A separator with many thousands of revolutions in a minute, separates from the milk foreign material and divides it up into a cream of a stable percentage and separated milk. The milk sugar and the albuminoids, also the mineral matter of this milk, is fairly well-known, and thus the laboratory worker is enabled to put up any prescription, which for a healthy baby of four months would read fat 4, milk sugar 7, albuminoids 1.50. Put up 8 tubes, each 4 ounces, (with lime water 5 per cent.) Pasteurize (75° C-167°F) for twenty minutes. In this mixture the lime water is just sufficient to slightly alkalinize the cow's milk. In this way the food of the child can be modified according to age, and to changed conditions of health.

"In a case of duodenal jaundice, in a girl of six years, the doctor prescribed fat 0.5, milk sugar 6, albuminoids 4; give 4 ounces every two hours. Send 12 tubes, each 4 ounces, lime water one-tenth. In a case of summer diarrhœa in a girl of four months, fat 2, milk sugar 5, albuminoids 1; send 20 tubes, each 1 ounce and 1 drachm. At the time of each feeding, add lime water 3 drachms. Sterilize at 212°F."

One of the beliefs guiding the

author of this method is as follows: "The constituents of the nutriment which nature has provided for the offspring of all animals and human beings that suckle their young is essentially animal and not vegetable. Human beings in the first twelve months of life are carnivora. An animal food entirely and always free from any vegetable constituents, has been proved to be the nutriment on which the greatest number of human beings live and the least number die."

Those who followed my teachings at any time during this one-third of a century know that I take some exception to this broad statement. Saliva and pancreatic juice are good for something better than idle elimination, and "nature" prepared the animal young from the first moment for more than mere pepsin digestion. The proof Dr. Rotch refers to can be experience only. Mine has taught me somewhat differently from the axiomatic positiveness of his assertion. But it must be far from me not to present Dr. Rotch's case in full. His standing and merits are such as to give him a hearing wherever and whatever he discusses. His rules, which moreover may be modified by my method at any time, are thoroughly good; they are scientific, exact and well thought out. Moreover, they are proven to be practicable. No matter whether it is the careful handling of a cautiously prepared milk, the methodical composition according to percentages, or the faithful pasteurization, or all of them, the results are good. I know of a number of babies who in health and disease have done well on the protracted use of laboratory milk. Only one observation struck me in a few cases. The formation of the muscles, and particularly of the bones, appeared to be slow, the teeth came a number of weeks or even months too late, the cranial bones

turned slightly soft in a few instances. In a few such cases I had to add animal broths or juice before the usual time: in one I tried phosphorus (elixir phosphori), which was rejected; in others it was well borne and useful. But taking all in all, the method appears to be sound and successful, as far as it can be so with cow's milk and the casein of cow's milk. It is to be deplored that, for the present, it is a method only for the rich: mine has the advantage of being one for the people, both rich and poor. If, or as long as the circulars of the laboratory will keep free of pretentious exaggerations—they have been taking that turn lately—the profession will do well to rely on it, or its like, as one of the means of furnishing the baby a food deprived of dangers, and in most cases sufficient. When found insufficient as regards tissue building, cereals can be furnished in the same mixture. The empirical knowledge of their beneficial effects, with which we have been furnished for more than a generation, has lately again been tested experimentally by Springer, of Paris, who improved the development of bone by a decoction of mixed cereals boiled for hours in succession. This long duration of the boiling process is, however, not demanded.

Like Professor Rotch, Professor G. Gaertner, of Gratz, employs the centrifuge for the purpose of obtaining a milk resembling that of woman. The latter was found by Escherich to contain casein 1.82, fat 3.10, sugar 6.23 per cent. The average of many examinations of cow's milk resulted in casein 1.76, and fat 1.81, and sugar 2.4 per cent. That of "fat milk" contained casein 1.76, fat 3, and sugar 2.4 per cent. This "fat milk" is obtained by so arranging the tube which expels the cream from the centrifuge separator that just one-half of the milk contained therein is expelled and collected. In this way, as casein, sugar and minerals are not affected at all by the process of centrifuging, the percentage of the latter is not changed at all, while that of the fat is doubled. The difference between Gaertner's and Rotch's methods is that the former is applicable to the large majority (but that only) of infants who require cow's milk appropriately prepared: and that the latter permits of all sorts of changes and percentages, and of all adaptations to the requirements of both the well and the sick, according to the opinions and intentions of the physician in every individual case.—*Pædiatrics*, Jan. 1, 1896.

ERRATUM.—On page 540, April number, the headline should read "Robert W. Hastings," not "J. J. Collie."

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ORIGINAL COMMUNICATIONS.

On Tubercular Peritonitis.

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General peritonitis is not, as one perhaps thinks, a disease long known and understood by physicians, for it was not till the end of the last century and beginning of this that attempts were made to distinguish the symptoms of peritonitis from those of enteritis.

The men who have gained especial merit in this respect are: Wallter, P. Frank, S. G. Vogel and Bichat. But there was no lack of opposers to the new theory. For instance, Portal disputed (1742-1832) the independence of peritoneal symptoms, basing his ideas on the painlessness of the abdomen in chronic peritonitis. Laënnec (1781-1826) and Broussais (1772-1838) added the most in a further knowledge of peritonitis from a clinical point of view; after Broussais, opinions gradually changed to

the standpoint of today, in consequence of careful study of the serous membranes in a histological and pathological respect. As regards tubercular peritonitis in particular, there are French and English monographies of older date existing, but it was especially well treated by Jos. Kaulick* in an excellent pamphlet.

The new text-books on special Pathology and Therapeutics, as Niemeyer's, Eichorst's, Strumpell's, Kunze's, but especially v. Ziemssen's, devote special chapters to this disease.

The distinction between tuberculosis of the peritoneum and tubercular peritonitis, as made by some authors, does not seem to be of so much

* "Viertetjahreheft für praktische Heilkunde," edited by the Medicinische Facultät of Prague, 1871, vol. 110, page 36.

importance, and in reality only indicates a difference in the force of the peritonic irritation, for a case is surely seldom found in which miliary tuberculosis is to be met with in the peritoneum while at the same time no inflammatory changes can be found.

PATHOGENESIS AND ETIOLOGY.

The causes of tuberculosis of the peritoneum coincide naturally with those of tuberculosis in general, and according to the present state of science, the tubercle bacillus, or bacillus Koch, will have to be regarded as the originating element of peritonitis tuberculosa. Peritonitis tuberculosa is seldom primary. Kaulick says it is well known that primary tuberculosis of the peritoneum is rare, and is, according to the scale of frequency of primary tuberculosis made up by Rokitsansky, much less common than that of other organs. At the same time one must not overlook the fact that some cases are apparently a primary affection of the peritoneum, while the issue of the process must be looked for in the lymphatic glands of the mesentery, or, for instance, of the female sexual organs, circumstances which sometimes can by no means be found out during life. It is furthermore not always easy, even for the pathological anatomist, to designate with certainty the original place of infection after a long duration of the disease, where usually several organs are equally affected. The remarkable fact, however, must be stated here, that, with

a few certainly rare cases, the most exact anamnestic research and objective examination could show neither a preceding scrofulous disease nor previous appearance of tuberculosis in any other organ nor finally the previous existence of inflammatory processes ending in caseous deposits; and that in such cases, also, the post-mortem examination showed no remains of such processes, which could have been brought into a causal relation to the later appearing peritonitis tuberculosa.

As regards scrofulous diseases preceding tubercular peritonitis, Kyburg never could find them in the cases observed by him.

According to the above statement, primary tuberculosis of the peritoneum can be met with; secondary infection is, however, the rule.

In tubercular peritonitis one frequently finds caseous deposits in the neighborhood of the peritoneum, especially in the sexual and urinary organs for instance, according to v. Ziemssen.

Further one finds caseous mesenteric glands; in the same way caseous lymphatic glands or localized peritoneal exsudates, also suppurating affections of the bones, may be the starting point of tubercular peritonitis. In this disease one frequently finds tuberculous affections of the lungs, and that either in the form of older processes, or that the affection is progressing.

In one case, says Kaulick, there followed a quickly-ending infection of the peritoneum immediately upon an

acute attack of Bright's disease. One patient stated a traumatic affection of the abdomen was the originating cause of his disease; nothing could be found, however, to confirm this statement.

As regards the age in which this disease occurs, it does not generally attack quite young individuals—that is to say under the fourth year (Barthez and Rilliet)—nor elderly persons; according to Niemeyer, it occurs most frequently between the ages of four to ten years. Henoch observed it in children mostly between the third and eighth year. In adults Kaulick found it most frequently from the thirtieth to the fiftieth year; both sexes being affected in a tolerably similar way.

PATHOLOGICAL ANATOMY.

Ziegler distinguishes in general three kinds of tuberculosis of the serous membranes.

In the first form tubercles appear without there being any inflammatory changes noticeable. This is especially the case in general miliary tuberculosis.

In the second form, diffusely spread, inflammatory changes take place simultaneously with the tuberculous eruption, leading to the formation of a liquid exsudate.

In the third form the diffusely spread inflammatory changes appear in the foreground, that is, the tubercles are seated throughout in the serous membranes or in the tissues changed by inflammation. There is no boundary

between the three mentioned anatomical forms; on the contrary, they merge one into the other.

The eruption of grey tubercles in general miliary tuberculosis, which takes place without diffuse inflammation, is observed most frequently in the peritoneum and in the pleura, rarely, in the pericardium. The grey tubercles originate from an accumulation of small round cells in the surrounding tissues. The epithelium is for some time quite unchanged; later on it is shed off or grows exuberantly.

Miliary tuberculosis, which shows its presence by moderate symptoms of inflammation, is specially observed in such cases where the serosa becomes secondarily diseased, through the reception of bacilli from a neighboring central focus—for instance, a lymphatic gland, a carious vertebra, a phthisical lung, a tuberculous intestinal abscess, or a tuberculous tube.

In other cases such a point of issue cannot be proved; the tubercular affection of the serous membrane appears as a primary affection, as, for example, not unfrequently in the peritoneum.

The tubercular lesions are either limited to a part—for instance, to the small pelvis or to the neighborhood of the spleen, or to a circumscribed point of the pleura or the pericardium—or they are spread diffusely over an entire serous membrane, for instance, over pleura and peritoneum. In the latter case a serous fibrous exsudate is usually found, which not unfrequently has a hæmorrhagic tint.

The number of the tubercules can be very limited or very large so that the serosa appears to the touch as if covered with small granulations. Its tissues are specially injected in the neighborhood of the tubercle, not unfrequently intersected by small hemorrhages. In the cadaver the latter are of a slate gray or black color or of a more brownish tint, through the formation of sulphuret of iron or in consequence of changes of the coloring matter of the blood. If the process has lasted some time, the serosa is usually more or less thickened, and the mesentery has a shrunk appearance. In the neighborhood of the tubercle, frequently a large amount of very vascular, delicate, opaque, embryonic connective tissue has been formed. Corresponding with the microscopical results in this form of tuberculosis there is usually more or less cellular infiltration. The epithelium is usually growing exuberantly and catarrhal desquamation is present. The tubercles are formed by a greater accumulation of the cells, in which tubercular cells and giant cells are to be found.

With the third form of tuberculosis of the serous membranes (which in contrast to the just mentioned miliary variety, is defined as adhesive tubercular inflammation) the diffusely spread inflammatory processes are predominating. As with other plastic inflammations, young, grayish, opaque, vascular, embryonic connective tissue is formed which produces many adhesions between the neighboring parts of the serous membrane, and

which contains gray or yellowish and white tubercles, often also, larger yellowish white or caseous and fibrous deposits.

Peritonitis of this special form is distinguished by a great development of connective tissue, which leads to thickening of the peritoneum and to adhesion of the intestines. Omentum and mesentery are always more or less thickened; the former is frequently changed into a thick, hard "apron" or into a cord which runs across the abdominal cavity.

The newly formed connective tissue and the thickened infiltrated peritoneum contains more or less numerous tubercles and caseous deposits. Liquid exsudates may be present or absent.

The spreading of the tuberculosis on the peritoneum takes place in most cases successively in a chronic way; in rare cases the tubercular infiltration over the whole peritoneum occurs rapidly.

Sometimes the process is found to be at a standstill; the neoformation is everywhere in the state of a caseous metamorphosis, without fresh deposits, and correspondingly with this also the exsudate is absorbed. This standstill ends, however, usually, so that the process appears anew in other organs and ends life, or new outbursts appear in the peritoneum.

SYMPTOMATOLOGY.

In order to obtain at least a certain system, the aspects of tubercular peritonitis being so manifold, Kaulick has

distinguished between three groups of cases, which, however, may often blend into one another.

In the cases of the first group the affection begins suddenly with marked fever, repeated chills, with subsequent subjective sensation of heat and objective increase in temperature. At the same time a vivid, shooting and burning pain is felt at a circumscribed place of the abdomen or even in greater extent.

These symptoms, as well as repeated violent vomitus, invite an examination of the abdomen, which, at a circumscribed spot, shows great sensitiveness, slight protruding of the abdominal walls, increased resistance, slight dullness of the percussive sounds—in short, the existence of a circumscribed peritoneal affection. At the same time there exists meteorism of different intensity and stypsis. After a short time the general and local symptoms become better, the fever decreases, the meteorism recedes, the local painfulness becomes less, yet the apparent resistance remains; the abdominal walls flatten and retract. The digestive functions become better, the movements come spontaneously or are easily produced, and one believes to have merely to do with an insignificant peritoneal affection. But after a shorter or longer interval, sometimes even after a few days, the same scene is repeated and a like inflammatory process in the neighborhood of the lately affected part of the peritoneum is diagnosed. Thus the process with some intermissions, permeates

successively the whole peritoneum, the single affections being of different intensity. Finally, after all symptoms, a total involvement of the peritoneum must be supposed; the walls of the abdomen are everywhere hard and retracted; at the same time one can see and feel here and there the intestinal coils distended by gas, and between them there are narrow, cord-like thickenings, in the beginning painful, later indolent. The lungs are often retracted considerably, thus making room for the distended intestines. The whole process covers several weeks, and in the meantime the patients have fallen away considerably. Then a longer interval in the general symptoms follows, and then the symptoms which must be caused by the coalescence and growing together of the intestinal coils, amongst them obstinate stypsis and the vomitus which occurs at times, begin to show themselves.

In this state the disease may remain for weeks and months, with temporary relief, during which time the increasing shrinkage and closer coalescence of the peritoneum may be assumed with great probability.

In spite of the complete cessation of the fever symptoms, a perceptible improvement of the state of nutrition cannot be attained, although I would not deny the possibility. The consumption, however, increases steadily, probably caused by the defective digestion. If until then one has not obtained a clear idea as to the fundamental disease, the succeeding affection through pleuritis or a rapidly

ending tuberculosis of the lungs puts an end to any doubt as to the diagnosis.

Sometimes, caused by the local circumstances, a rather copious intestinal hæmorrhage takes place or a secondary perforating peritonitis, which of course is not frequent and may offer a good many variations.

A second group is formed by such affections with the symptoms of ascites, with or without œdema of the lower extremities. Here, too, belong most cases of peritonitis tuberculosa. The first symptoms are so insignificant that the patients are able to attend to their business. Slight pains in the abdomen, a permanent sense of pressure and strain, occasional vomitus and stypsis, passing loss of appetite, are usually complained of by the patients. Occasional chills, inclination to get tired and tendency to perspiring, may be attributed to unimportant fever attacks. Gradually a uniform increase of the volume of the abdomen, which steadily increases, occurs; former constipation changes to diarrhœa; the patients having the feeling of being constantly bloated, then only seek the advice of the physician. The examination shows slight increase of temperature, with slight exacerbation in the evening, night sweats, greater acceleration in the action of the heart, a weak small pulse. The patients are mostly pale and show different stages of emaciation. The thoracic organs are free, the lungs corresponding with the extension of the abdomen are contracted, high

position of the diaphragma, with corresponding high position of the heart and liver, can be demonstrated. The abdomen is distended uniformly and spherically, the upper part of the abdomen often with a larger circumference. The succussion shows distinct fluctuation and the percussion shows a free liquid in the abdominal cavity.

Side by side with the accumulation of liquid there constantly exists a predominant meteorism of the intestines, and the outlines of the distended intestinal coils can usually be seen and felt; the intensity of the intestinal contractions appears considerably diminished. Sometimes it is possible to show from the percussion that a part of the fixed intestinal coils are covered by the fluid. With the increase of the fluid a moderate dilation of the veins of the abdominal walls and œdema of the lower extremities is developed, or the already existing œdema increases in its intensity. The secretion of urine is considerably decreased without an essential change in the chemical constitution being established: at the most, traces of albumin may be found; the energy of digestion decreases; temporary vomitus takes place and constipation and diarrhœa intermit.

After this state has lasted some time a liquid exsudation into the pleural cavities, sometimes into the pericardium, can be shown by the moderate increase of the fever symptoms; thereby the energy of respiration weakens.

Even a repeated examination of the

liver and spleen shows no reasons for an important affection of these organs, even after the examination is made after a not unfrequently needed puncture of the abdomen.

Thickening of the abdominal walls and solid tumors in the abdominal cavity can, as a rule, not be proven; and therefore, in considering the complete course, it is above all the succession of a similar affection of several serous membranes which promotes the supposed diagnosis to the greatest probability or truth.

Death, which always results, may occur in different ways. In such cases with more continuous course, manifold variations can of course happen, as was mentioned before. The most important changes are shown when the exsudation into the peritoneal cavity is connected with considerable hæmorrhage and one has a co-called tuberculous hæmorrhagic peritonitis. Then the symptoms of anæmia are marked in a high degree besides the above mentioned, and the hæmorrhages, which mostly occur at intervals, manifest themselves by sudden pallor, coldness of the extremities, very frequent, small pulse, great thirst and syncope, which indicate easily the fact of an internal hæmorrhage. At times such an accident may become the direct cause of death.

In a third group all such cases may be comprised of those which excel through a direct involution of the process. In the beginning they show the same development and the same cause as those of the second group. After a longer duration of the affec-

tion, which is limited to the peritoneum, the fever disappears totally; at the same time with a decrease of the fluid in the abdominal cavity an increased diuresis takes place, the patients recover, and the bettering of the state of nutrition can be noted after a total resorption of the exsudate, and the eventually existing hydrops also objectively in the form of an increase of the weight of the body. Of the local symptoms there remains nothing besides a certain degree of meteorism, with a very contracted and almost inactive abdominal wall, and such disturbance in the function of the intestinal canal, occasioned by the remaining and increasing mechanical disorders; or one can prove the great thickening and retraction of the peritoneum in a more direct manner by touch. After a longer subsidence (even as much as several months) of the affection also in this case, tuberculosis of other serous membranes, especially of the pleura and pericardium, sets in, or an acute miliary tuberculosis of an organ with a preponderance of the lung affection takes place, and leads to the inevitable end.

Since the variety of an affection reposes upon the manifold symptoms, we will discuss these singly.

1. *Fever.* The fever symptoms are very moderate in the beginning of the disease, even so slight that they are specially observed by the patients. Slight chills, passing sense of heat, increased sense of warmth over a single spot, or at a larger circumscribed area of the abdomen, passing

burning heat in the face, in the palm of the hands, combined with slight thirst, inclination to sweating, a sense of being fatigued and depressed, are the usual statements with which the patients indicate the beginning of their disease and which may be considered as the expression of moderate fever. If the rare opportunity of following the disease from the start is offered, one finds as a rule only a slight increase of temperature, which would scarcely permit of suspecting the serious affection. The insignificance of the original fever symptoms is probably the main reason why the patients require being admitted into the hospital so late, often only after the disease has lasted for weeks.

There are certainly exceptions from this kind of fever symptoms. Thus *Kaulick* mentions a case of sudden great increase of temperature, lasting for only a minute or two, chill and following collapses, in a similar way as is observed in a sudden attack of diffuse peritonitis occasioned by pyæmic process or a perforation of the intestines. As a rule great increases of temperature corresponds with a widely spread tuberculous infection, or with a spreading of the tuberculosis in the peritoneum or at another place, for instance, in the pleura or the lungs.

In general the fever in its course is characterized by exacerbation in the covering of moderate intensity, with night sweats, as is also observed in a similar way in other tuberculous diseases. But in tubercular peritonitis very remarkable remissions may

be observed, which may last several days, weeks, even several months, during which time the temperature of the body does not rise above the normal, and then the patients appear to have recovered, until a second attack shows us that this is not the case.

Eichhorst not only assumes long remissions of the fever, but mentions also the fact of peritonitis tuberculosa with entire absence of fever.

2. *Emaciation* is to be observed usually in a very high degree with patients effected with the disease under consideration, it must of course be observed whether a patient is examined just after the disease has set in, or whether he has been sick for some time; at any rate a continual change for the worse in the state of nutrition will be the natural and necessary consequence of the affection. Change for the better is only observed, as regards the state of nutrition, in an involution of the local affection.

3. As regards the pain, one may observe the greatest variety. The course of the process being slow and chronic, the pain is in the beginning and later on in the disease so insignificant the patients complain only of sense of pressure and tension, at the utmost of slight shooting pains in certain parts of the abdomen. Usually upon pressure an increase of the pain is produced, especially at the presence of thickened tumors, f. i. the omentum having become thickened.

In other cases a sharper and burning pain exists in the beginning over a circumscribed point, which is

considerably increased by pressure and which spreads successively over neighboring parts, sometimes over the whole extent of the abdominal walls, while the places which were effected first show a lesser sensitiveness.

Except in rare cases a very sharp spontaneous pain sets in in the beginning, which is the cause of many reflex phenomena and then the course is distinguished by great pain, so that the patients can scarcely bear the slightest touch of the abdominal walls, which are either distended by exsudate and meteorism or are very retracted by the absence of a liquid exsudate. From this variation in the pain it can be seen that different individuals may be subjected to all degrees of pain, and from its occurrence nothing characteristic can be derived for the tuberculosis of the peritoneum.

If in the course of the disease the progress comes to a standstill, with decrease of the fever and improvement of the general health, then, with the other local symptoms also, the pain disappears and is only produced in a small degree by deep pressure.

4. A constant symptom of this disease is the meteorism. It predominates in the beginning of the disease, accompanies the whole process and continues usually to a perceptible degree, even after the evolution of the local process or after a standstill of the affection has set in. The same is in direct proportion to the surface extension of the tuberculosis as regards its intensity, and is probably mostly due to a simultaneous affec-

tion of the muscular layer of the intestinal tract.

If the affection manifests itself right from the beginning as a diffuse inflammatory irritation of the peritoneum, one finds the whole intestinal tract distended by gas and the outlines of the puffed, elastic intestinal coils marked visibly under the abdominal covers or discernible for the touch, if the hands glide softly over the skin of the abdomen.

But in such cases, where the process shows quite a slow progress, meteorism belongs to the most prominent symptoms and has in proportion to the amount of free exsudate mostly a preponderant part in the increase of volume of the abdomen and in the increase of the extent of the abdominal cavity. Niemeyer, however, ascribes the increase in size of the abdominal cavity mostly to ascites. A peculiarity of the meteorism consists in the decrease of the reflexes from outside impressions, while in meteorism in consequence of mechanical obstacles, without disease of the peritoneum, external irritations produce the most vehement and most painful intestinal contractions. We observe in this case considerable inactivity of the intestinal contractions. The reduced energy of the intestinal muscles and the diminished reflex instability probably furnishes the reason why, during the duration of the chronic inflammatory irritation of the peritoneum, one observes only rarely more severe and colic-like attacks of pain.

If in the course of the disease a

close adhesion of the intestinal coils among themselves, or also at the same time with the anterior wall of the abdomen, takes place, these mechanical reasons contribute considerably towards maintaining the meteorism. As long as the intestinal coils remain easily movable and the folds of the peritoneum do not retract considerably, one finds the distended intestines pressed upward in every direction; the ribs are pressed far apart, so that the usually more uniform extension of the abdomen obtains a changed form, whereby the circumference of the upper part exceeds the lower considerably. If, however, a part of the adherent intestines is retracted and bound to the spinal column by the retracted mesentery, then the same are everywhere covered by the liquid, which, if present in a considerable amount, are perceptible everywhere by a most energetic fluctuation and which lets one expect a complete dullness of the percussion sound within its reach. It is, however, surprising upon resorting several times to percussion to have a dullness that changes differently according to time and place of the otherwise and in general dull tympanitic sound, which result admits of supposing the above state of the intestinal coils which can be made use of when the diagnosis is made.

In such cases where the disease shows no liquid exsudate in the abdominal cavity, there is usually only in the beginning of the affection to be observed a larger extension of the abdomen towards the front, in

consequence of the meteorism. In this case the anterior wall of the abdomen is convex; later the abdominal walls are tightly retracted, so that the abdomen may seem to have sunk in. The amount of the meteorism may then be recognized from the retracted lungs and inflated intestinal coils, which can be seen as well as felt. If a change for the better takes place, the meteorism changes according to the anatomical and pathological circumstances. At any rate it is worth being observed that in such cases, where no considerable retraction and thickening can be shown, the involution of the process is distinguished by the duration of the meteorism.

We must here mention the changes of the walls of the abdomen near the navel. Vallin has established this condition of the navel (wrongly according to Eichorst) as a characteristic sign of peritonitis tuberculosa.

Sometimes, indeed, an inflammatory redness and œdema are found around the navel in this malady. This inflammation may disappear entirely, but perforation and discharge of the exsudate from the abdominal cavity may also take place, an abscess having formed previously. This symptom is not very important, since it is not very frequently met with and as it may be found in other forms of peritonitis as well.

Kaulick ascribes a differential diagnostic signification between carcinoma and tuberculosa to this symptom, since the carcinoma never shows any depression.

Great varieties are shown in the exsudation. As a rule it can be assumed that the development of the tuberculosis in the peritoneum is accompanied by a more or less considerable exudation in the abdominal cavity. *Strumpell*, however, says: "In general a rather copious accumulation of liquid in the abdominal cavity is not frequent in uncomplicated chronic peritonitis, while the same can be observed in almost all those cases where a combination of tubercular peritonitis with cirrhosis of the liver takes place. From the smallest amounts to the quantities of exsudate which press the intestines and diaphragma upward, one can find all degrees.

In a few cases one finds during the whole course of the disease no abdominal exsudate. In the course of the disease, an existing free exsudate can be subjected to various changes. When the fever decreases, then the diuresis increases; in case of severe attacks of diarrhoea, the amount of fluid can decrease and will reappear when a change for the worse occurs. An entire disappearance of the ascites is, however, very rarely observed.

The fluid has mostly been collected in the lower parts of the abdomen and is free and movable, while the intestines are pressed upward or are drawn upward towards the spinal column by cicatrisation. There are, however, also formations of pockets and adhesions, especially such of the intestines with the anterior abdominal wall which may considerably change the first described condition. Diagno-

sis of the ascitic exsudate is still permissible, even if the most dependent part does not give an absolute dullness. (*H. Vierordt*: Simple chronic peritonitis exsudation.) Also hydrodrops saccatus along with free flow into the abdominal cavity may be observed.

The liquid exsudate itself varies but little from that which occurs in other chronic inflammatory processes, mostly of greenish yellow color, rich in albumin, fat and flaky coagulum, sometimes with much blood. *Von Ziemssen* assumes the frequent hæmorrhagic quality of the exsudate to be frequent, and explains the great tendency to hæmorrhages partly from the change in the walls of the blood-vessels, partly from the stoppage in a part of the vascular system.

Eichorst uses the hæmorrhagic exsudate to make the differential diagnosis between cirrhosis of the liver and tubercular peritonitis.

The symptoms of an œdema of the lower extremities are explained partly by pressure of the fluid in the abdominal cavity upon the cava ascendens, partly through the changes of the peritoneum.

5. Palpable tumors may exist with tubercular peritonitis in the most varied forms. Most frequently the omentum is felt through the abdominal wall like a cord running across or obliquely over the navel. In the absence of a fluid exsudate, *Kaulich* observed differently formed rope-like formations in the abdomen, somewhat sensitive thickenings of the retracted abdominal walls, which are

mostly situated between distended intestinal coils. After a complete or partial resorption of the ascites, differently formed lumps and swellings are discernible, which correspond with the swelled mesenteric glands or with thickenings of the peritoneum.

Sometimes the intestinal coils form several *convolutions*, which are separated by deep indentations, which are retracted against the spinal column; the same are covered with thick pseudo-membranes and appear as large round tumors, which look exactly like compact masses and with which also percussion does not always give the desired explanation.

6. The disturbances of the functions of the stomach and intestines are always very important with peritonitis in general, and, therefore, also with tubercular peritonitis. In the beginning of the disease, the peritoneum being intensely irritated, vomiting takes place. Constipation is usual, diarrhœa infrequent. If high fever sets in, the symptom of every infectious disease—thirst, loss of appetite, etc.—are added.

Then the process is a slow one without severe fever symptoms; also the functional disturbances of the digestive tract are in the beginning of a more secondary kind.

Loss of appetite, frequent flatulence, rising of odorless gases, at times vomitus, especially after one has partaken of indigestible food, styphnia, intermitting with diarrhœa, are the usual symptoms which the patients will have to complain of.

If in the course of the disease the

intestinal coils adhere still more together, a quicker change between better or worse of the digestive functions will take place. Long constipation will be followed by more frequent vomitus; after the movements the appetite is likely to increase; constipation is likely to be followed by diarrhœa.

After a long duration of the disease, when the emaciation has proceeded rather far, and when the circulation has been limited by retraction of the peritoneal folds, sometimes copious intestinal hæmorrhage, which must be ascribed to capillary raptures, take place, and lead usually quickly to exhaustion. Smaller hæmorrhages are observed when, at any bend of the intestines, there is an ulceration. If additionally a fixed pain is to be observed at any place of the abdomen, we may rarely expect a perforation. Kaulick had the opportunity in two cases to foretell the danger from the just mentioned state, and the foretold fear became both times an unhappy fact.

7. As regards the symptoms offered by the sexual organs, the female patients complain mostly of non-appearance of the menses or of a painful or irregularity of the menstrual process. These complaints have of course nothing specially characteristic, but invite all the same a careful gynæcological examination.

8. The serous covering of the liver is affected in most cases of tubercular peritonitis quicker than the parenchyma; the liver shows, however, only few changes as to form and size. (According to Strum-

pell, the liver is not unfrequently enlarged.) Since the outlines of the liver are mostly displaced or covered by meteorism or ascites, one can obtain by percussion an exact picture of the size and form. Icterus was not observed by Kaulick in this disease, although its possibility cannot be denied, as catarrhal affections of the intestines are not rare, and as a rule mechanical circumstance might cause it.

9. As regards the spleen, the same author says that it was usually found enlarged partly by an acute swelling and participation in the tuberculous process, partly by amyloid degeneration.

10. The state of the veins must of course be derived from the state of the urine. If the accumulation of fluid in the abdomen is considerable, the amount of urine is less. Larger amounts of albumen are usually only to be observed in the not frequent consecutive amyloid degeneration. Tuberculous affection of the veins may be supposed from the small amount of blood and coagulation from the urinary channels. Increase of the diuresis, with limpid urine, indicates as a rule a change for the better in the disease; sometimes, however, a very copious diuresis was observed just before death.

11. Very important is the minute examination of the thoracic organs: we very often find in the beginning of this affection the most varied physical symptoms, either in the form of old processes or in the form of fresh

tuberculous centers. Very often one does not find anything for a long time other than a retraction of both lungs, which corresponds with the expansion of the abdomen and the lower pectoral aperture

The heart is in a high position; the greater frequency of the respiratory movements is practically due to the mechanical circumstances. Also the frequent and small pulse can be derived from that, since it is only seldom to be ascribed to a strong increase in temperature.

In the course of the disease in these cases, mostly tuberculosis of the pleura, and that usually on the left side takes place with considerable exudation and the well known physical symptoms.

Less frequently tuberculosis of the pleura is accompanied by new formation in the pericardium, and this fact may be sometimes ascertained, or at least assumed, through the appearance of a *friction-sound*, or in case of a quicker accumulation of fluid in the pericardium, through the disappearance of the formerly clear heart impulse and greater area of the *dulness*.

Sometimes a relatively simple tubercular peritonitis is followed suddenly by an acute tuberculosis of the lungs which will cause rapid death.

12. The fact that tubercular peritonitis, as with all other tuberculous affections, one finds swollen glands in the neck, is not to be considered characteristic of this disease.

[To be continued in July number.]

On the Late Results Obtained from Conservative Operations on the Ovaries, with a Report of Twenty-two Cases.

BY R. DONNET, M.D.,

Ex-Intern of the Hospitals of Paris.

(Continued from May Number.)

From what I have said in the first part of this paper, the results obtained might permit me to leave all commentaries aside; however, I would like to reply to several objections which have been made to these operations.

Sclero-cystic ovaritis has been subject to numerous controversies. For some it is only a slight lesion without importance and entirely too insignificant to explain the painful symptoms. It is believed that the patients are hysterical women in whom the operation acts by suggestion. For other writers, a sclero-cystic ovary is an organ lost as far as its function is concerned, and in a conservative operation only a useless organ is preserved and not destroyed.

It is easy to reply to both these arguments. The first can only apply to patients who are really hysterical. The paper by Dr. White shows that the cures obtained by the operations are now *per se*. But besides the fact that these operations often fail to obtain the desired end, I can affirm that not one of the patients that I have seen presented the slightest trace of hysteria. Some of them had

a peculiar character, exaggerated sentiments, or a certain degree of nervousness; but I have never found a single distinct stigmata of hysteria. Consequently, no one can say that if the operations performed by Dr. Pozzi have been successful, that it was because the patient had hysteria. What is still more, we will report two cases in which a sclero-cystic ovaritis existed and which were not treated; no result was obtained by removal of the adnexa on one side, in one, and hysteropexy in the other.

The first of these cases was a woman who had very acute pains, and once the abdominal cavity opened, it was found that both ovaries were unusually diseased. The left organ looked like a large trilobed fig filled with small cysts, and was removed. The right, on the contrary, only had two small cysts and a few adhesions, and was left in place without being touched. The patient did not suffer any longer from the left side, but continued to suffer on the right.

The pain continued to increase, and by palpation more than two years after the laparotomy, the ovary,

which appeared only slightly altered at the time of the operation, had increased in size, was very painful on pressure, and apparently as diseased as was the left organ at the time of its removal.

We are consequently in the right to conclude that, if after having removed the left ovary, ignipuncture had been applied to the other ovary, which only presented lesions at their beginning, regression of the disease would have occurred and a cure brought about.

And still more, if the lesion on the left side had not been more marked than on the right, would any importance have been attached to such slight lesions, and would not the painful symptoms have been put on the account of nervousness on the part of the patient?

The second case is more recent. A young woman suffered in her abdomen, and, besides the ovarian pains presented a retroflexion. At the laparotomy the tubes were found healthy and the ovaries were sclero-cystic. The surgeon who operated on this patient attributed the painful symptoms to the retroflexion, and only performed hysteropexy without touching the adnexa. The pain, nevertheless, continued sharp as before the operation, and again the patient asked for help. Dr. Pozzi then performed castration on one side and resection of the ovary on the other. This woman, although operated on very recently (three weeks ago at the time of writing), is already better. Will this cure be durable? I do not

know, but we can hope that it may be so. This case proves that simple laparotomy and hysteropexy will do nothing in relieving the symptoms of sclero-cystic ovaries. The ovarian lesion appeared to us of so little importance that it was thought better to abstain, and, nevertheless, this future showed that the ovaries were the only cause of the trouble.

Sclero-cystic ovaritis is consequently a serous lesion which should be treated; which certainly produces the pain and the menstrual troubles; but is it sufficiently serious to render the ovary in which the lesion exists improper for fecundation? The facts prove the contrary.

Dr. Routier, when speaking of ignipuncture for sclero-cystic ovaritis, says that he has never seen a case in which pregnancy followed the operation. According to this writer, unilateral castration should never be done if it could be shown that the polycystic ovary is no longer apt for fecundity. "This proof is almost demonstrated. Couzette and Pilliet are affirmative in this respect being guided by their anatomical studies. The patients that I have observed clinically confirm their assertions; I have never known that any of the patients entering into this class have become pregnant."

So much the worse for histology, because our patients demonstrate the contrary. In the paper already alluded to in the beginning of this article, Dr. Pozzi had replied to these theoretical objections, and it is well known that the slightest trace of

healthy ovarian tissue can contain a quantity of ovi sufficient to furnish a perfect genital life of the woman. The constant persistence of the menses after partial operations on the ovary, when the tubes were found perfectly healthy, is enough to allow of the supposition that this patient could become pregnant, and experience has demonstrated this fact.

Without speaking of the cases already reported by Martin of Berlin and Schröder, let us examine our own cases. Four patients of Dr. Pozzi have become pregnant; three of them had labors at term and one miscarried.

In the first case the patient had already had five children. The left ovary was filled with projecting serous and sanguinous cysts; the remainder of the ovary was fibrous. The tube, which was thickened and red, was permeable. On account of the degeneration, already very far advanced, this ovary was removed. The right ovary presented at its extreme end a projection the size of two peas which was formed by a cyst of the corpus luteum: the remainder of the organ appeared healthy as was the tube. About a quarter of the ovary was resected. This woman, in whom there remained part of one ovary, had a child at term nineteen months after the operation. The child was well formed and weighed a little over six pounds, and continued to do well. The labor was normal and also the presentation, which was a vertex one. There was no complication in the abdominal cicatrix.

The second patient had large, soft œdematous ovaries filled with small depressible points. These ovaries were riddled with ignipunctures (eleven in the right, and twelve in the left ovary.) The operation was ended by suturing the uterus to the abdominal wall.

This patient, who had not had any children for the last five years, became pregnant three months after the operation and had a child at term on January 24, 1894. The child was well built and weighed nearly six pounds. The labor was normal with a vertex presentation. The abdominal cicatrix remained perfectly solid.

The third patient had only slight lesions; the left ovary was slightly adherent and presented a sanguinous cyst the size of a large pea and three other transparent projections. The right ovary was as if drawn out, and presented a follicular cyst at its external aspect. The lesions were similar to those of the other ovary.

The cysts were opened and cauterized with the thermocautery and hysteropexy was performed. This woman had a labor at term in September, 1894. There was no complication with the abdominal incision.

The fourth patient was a woman of twenty-four years, who had never been pregnant; the ovaries were large and soft: they were punctured with the thermocautery.

In Dec., 1894, this woman became pregnant. But at the time of conception she contracted a gonorrhœa and miscarried.

The patients that we have just spoken of have undergone various operations—one partial resection and three times ignipuncture. In two cases hysteropexy was performed. If the third patient had only a sclero-cystic degeneration, which was only slightly advanced, it is not the same for the first patient, whose ovaries were so diseased that one and a quarter had to be sacrificed. In the cases in which ignipuncture was practised, we noted that a large number of the punctures traversed the tissues of the organ. It is to be presumed that only a very little of the ovarian tissue had resisted the destruction, and still, although only a very little remained, this little was quite sufficient to allow fecundation to take place.

The conclusion of what has been said is that sclero-cystic ovaritis, far from causing sterility, can only produce it if the ovary is entirely invaded by the process. In the practical point of view every ovary in which it is not absolutely demonstrated that the degeneration is total, should only be resected in part, because, as I have already shown, it is only necessary for a trace of the ovarian tissue remaining in the abdomen to preserve fecundity.

A very remarkable book has appeared recently in which the question which we are now considering is presented in a new light; I wish to speak of pelvic neuralgia.

Dr. Richelot advances this definition as follows: "The painful symptoms which are serious, permanent and rebellious, which have for seat

the uterus and the ovaries, do not correspond to any definite lesion, and are accompanied by a more or less exaggerated neuropathic condition." Examination only shows some vague painful points, and if there is a maximum of painful intensity, it is not less true that it is the genital system as a whole which is responsible. The ovary is in its proper position and normal; the vaginal cul-de-sac are elastic; there is no projection, no pastiness, but only an exquisite tenderness of the cervix, of the cul-de-sac and the iliac fossa. Since reading this book we were struck by the similarity of this clinical picture and that presented by the patients on which we have operated, and we have searched with more care the signs indicated by Richelot and we have arrived at the following conclusions: In certain patients we have found continual pains which have lasted a number of years, accompanied by disturbances in the menses. The most varied medical treatments have had no effect. The patients were nervous arthritics as it is understood by Richelot.

In spite of these severe pains the physical examination was about negative; the cul-de-sac were elastic and the vaginal examination showed that everything was painful, but that there existed a maximum point of tenderness which was not distinctly limited in one of the cul-de-sac; at other times the ovary was perceptible to the finger and extremely painful; but without very severe suffering it was difficult to affirm that there

was a lesion of the ovary. It appears to us that this general clinical picture is entirely in unison with that described under the name of pelvic neuralgia. I am convinced that these diseases, which for our master, Dr. Pozzi, are chronic ovarites, would have been pelvic neuralgia for Dr. Richelot.

When laparotomy is done what is found? Lesions of variable kinds, sometimes slight, others very marked; sometimes the ovaries are soft, œdematous; sometimes, on the contrary, and more often, there is a sclero-cystic ovaritis. It can be established from what has been said that clinically it is often difficult to make a complete diagnosis, and that a given lesion, slight or considerable, might pass unnoticed if we did not have as a guide the symptom pain, which is always constant.

Consequently, I think that if pelvic neuralgia exists, a fact that we do not wish to deny, it is not less true that a large number of so-called neuralgias are nothing less than sclero-cystic or diffuse ovarites in which the physical signs are obscured, although occasionally they are very considerable. That which proves it is the efficiency of natural treatment directed to the ovary itself: that which might happen if the ovary had always a part as efficacious as the one that is often attributed to it.

Now, no matter what it may be, how can we treat these patients? I would not put aside hysterectomy as a bad operation; far from it, for I believe that it is excellent since the diseased ovary is removed; but I

believe that the same thing can be accomplished with far less danger and trouble.

My choice between double castration and ignipuncture would be determined by one consideration which for me is of the highest importance, namely, the age of the patient.

If the woman is young—and this was the case in Dr. Pozzi's patients—all should be done to preserve the fecundity. We know that it is possible to cure without extirpating the ovaries, and consequently, why should not the conservative operation be first tried, one that we have demonstrated to be efficacious as well as far from dangerous. If this operation does not succeed, if the degeneration continues its progress, there will of course be time to perform a vaginal hysterectomy.

If the woman is old, if she is near the menopause, we would not have the same scruples; and even if we thought that the ovarian lesion was not the only cause of the pain, and a uterine lesion was found as well, I should not hesitate to propose castration: and since Dr. Richelot has obtained such splendid results by vaginal hysterectomy, I should willingly employ his method.

Before relating the histories of the twenty-two cases I will draw the following conclusions from what I have already said:

Ignipuncture and partial resection of the ovaries applied to the treatment of diffuse ovaritis and of sclero-cystic degeneration has given what they promised.

1. They are efficacious for the pain and the menstrual troubles. The cures are definitive.

2. There is no influence on the fecundity of the patients operated upon. Pregnancy and labor undergo no disturbing influences from the effect of the operation.

3. They are both without gravity.

4. They never produce the troubles that are observed after double castration of the adnexa.

5. These operations are indicated whenever a young woman suffers from pain in the ovarian region with or without menstrual flow, in whom there exist signs of chronic ovaritis: when the uterus is healthy or presents a lesion curable by minor operation, such as curettement, amputation of the cervix, etc. In other cases the permeability of the tube is absolutely necessary.

6. These operations are contra-indicated when, beside an ovarian lesion, there exists a disease incurable by minor operations, such as old chronic inflammation of the uterus, etc. In such a case vaginal hysterectomy should be performed. When a woman is old, near the menopause, and all the genital apparatus appears diseased, it is, according to my thinking, preferable to perform hysterectomy, even if the uterine lesions may be cured by lesser measures; this time will be supported without detriment to the patient, because the ovary has become useless.

CASE I.—M. C. Age twenty-three years. At eighteen she had a

miscarriage at three months. Since this time there has been pain in the abdomen, more sharp on the left. These pains, which were in the first place intermittent, have become continual. For the last year these pains have been extremely sharp; they are still seated on the left side, shoot down between the kidneys and the left thigh.

The menses are regular, normal in amount, but very painful. For the last five years there had been a leucorrhœa.

By examination the uterus is found small, and in a very marked antiflexion. On the left, the ovary is found double its normal size; a small par-ovarian cyst the size of an almond can be felt. On the right the ovary is small and prolapsed in the posterior cul-de-sac.

Laparotomy was performed on July 3, 1894. The left ovary, being completely degenerated, was removed. The right ovary was sclero-cystic; a large portion of the organ was resected, the remainder being sutured with catgut. The tube was adherent and was permeable. The adhesions were broken up and the tube was brought out on the ovarian stump and united to it by three sutures.

The after results of the operation were that the patient left completely cured the first part of August.

The ultimate results were as follows: The patient was seen several times and the cure was found to be maintained. The pains had completely disappeared, the menses which are slightly more abundant than be-

fore the operation, are perfectly regular and not painful. On the 20th of Nov., 1894, the patient wrote to Dr. Pozzi that her health was of the very best, thanks to the operation which she had undergone.

CASE 2.—J. R. Age 24 years, no children. Had a miscarriage at four months in 1889. Six months afterwards the patient began to suffer, and at the same time profuse leucorrhœa appeared. The pains, which in the first place were continual and very marked, especially in both the iliac fossæ, became later intermittent, and appeared in the form of attacks occurring every six weeks. The menses were irregular, abundant, even menorrhagic and painful.

On examination the cervix was found soft, granular and ulcerated on the left. The uterus was in anteflexion and only slightly movable.

On the left the tubes and ovary were painful and adherent to the pelvis. On the right the ovary was adherent to the uterus and slightly painful.

Laparotomy was performed on March 5, 1892. The left adnexa were removed, being considered too diseased to be left in place. The right adnexa were adherent, while sclerosis of the ovary was most marked between the external borders. The part which was in the state of sclerosis was removed by two incisions parallel to the axis of the ovary and the borders of the incision were united by catgut sutures. The tube was red and slightly thickened, but was permeable; it was stretched

out and sutured by four points to the stump of the remaining ovary.

The result of the operation was very simple; for four or five months the patient continued to suffer; the menses were very painful.

The ultimate results were that the patient was seen the first time in 1893. At this time the pains had completely disappeared and the menses were normal. She was seen the second time in Nov., 1894, and this time the cure still continued. There were no more pains or menstrual troubles.

CASE 3.—A. C. Age 23 years. Very sharp pains in the abdomen accompanied by profuse leucorrhœa. Menses were irregular, profuse and very painful. Examination showed that the left adnexa were large, covered with bosses and adherent to the uterus. On the right the ovary was found of normal size and very painful on pressure.

Laparotomy was performed on Dec. 26, 1892. There was a double ovariitis, ignipuncture of the right ovary, removal of the left adnexa. The patient left the hospital a month later completely cured. The later results are as follows: The patient was seen on Nov. 20, 1894. The pains had completely disappeared, the menses have become regular and are no less profuse than before the operation, but they are no longer painful. The patient wrote us that she was very satisfied with the operation and considered herself completely cured.

CASE 4.—J. S., aged twenty-nine years, entered the hospital Nov. 12,

1892. The patient is subject to nervous attacks, when she falls down and loses consciousness.

Two labors; since the last one, which occurred in 1890, the patient has suffered from the abdomen. The pains are especially marked on the left: they are continual, lancinating, and increased at the time of menstruation. At the time of the operation the pains had become so sharp that all work was impossible. There had been a very profuse leucorrhœa and the menses appeared every fortnight.

Examination under chloroform showed the uterus was in retroflexion. On the left and behind, the adnexa were indurated, slightly increased in size and appeared adherent. On the right the cul-de-sac was free, but the adnexa were prolapsed in the posterior cul-de-sac and were indurated and covered with bosses.

Laparotomy was performed on Dec. 16, 1892. On opening the abdomen a slight amount of ascitic fluid came away; then with the hand a few adhesions were broken up, which bound the uterus backwards. The left ovary was slightly adherent: a small projection was found on its surface about the size of a pea which was nothing more than a sanguinous cyst, while three other small cysts contained a serous liquid. These cysts were united with the thermocautery and their cavities cauterized.

On the right the lesions were the same: the ovary had a peculiar form: it looked as if it were drawn out in the sense of its length and the presence of a sanguinous follicular cyst seated

at its internal aspect gave it a moniliform aspect. The sanguinous cyst was opened and cauterized with the thermocautery.

The uterus was fixed to the abdominal wall by three silk sutures, and a strip of iodoform gauze was placed in the posterior cul-de-sac for drainage and for support of the uterus.

The patient did well, and when she left no longer suffered.

The ultimate results were that, in 1893, she had the same pains that she experienced before the operation. Examination showed that the cul-de-sacs were elastic and painless.

This patient became pregnant at about Dec., 1893. Her labor was normal and presented nothing worthy of note. She had her labor in Sept., 1894, ending in a living and well-formed child of normal weight. From this time she has suffered no more, which has been told us by Dr. Wallich.

CASE 5.—M. F., aged twenty-four years: has never had any labor or miscarried. At twenty-three years old she contracted a gonorrhœa, micturition was painful, and profuse leucorrhœa. Shortly afterwards she experienced pains in the abdomen, especially on the left. Curettement and amputation of the cervix were performed without any result.

The patient suffered on both sides of the abdomen, but especially on the left: the menses were irregular, painful and profuse.

Examination showed that the uterus was in antelexion. In the lateral left cul-de-sac the ovary was

found prolapsed, increased in size, but movable. On the right the same lesions were found.

Laparotomy was performed March 15, 1893. The left ovary was large, soft and œdematous. Nine deep ignipunctures were made in it. The size of the organ then diminished about a quarter. On the right the lesions were the same, and eight ignipunctures were applied.

The patient left the hospital, cured. She was seen four months after the operation and it was then found that she no longer suffered, her monthlies were regular and painless.

The ultimate results were as follows:—

Seen in July, 1894. The patient, who was completely cured, had suffered in December, 1893. From this time the patient has complained of uneasiness and flushes of heat. These troubles coincide with a cessation of the monthlies, which up to that time had been regular. By examination the local condition was found perfect and a pregnancy was suspected.

At this time the patient had become again infected; she had painful micturition and leucorrhœa. The pains reappeared, and Dr. Pozzi performed laparotomy.

CASE VI.—M. D. Age thirty-five, has had four normal labors, and following the third one, which occurred eleven years ago, the patient began to suffer in the abdomen. These abdominal pains have increased and the menses have become irregular since the fourth pregnancy, which

occurred four years ago. The left adnexa formed a small, hard irregular tumor by examination. Laparotomy was performed February, 1893. The left adnexa were removed; partial resection of the right ovary.

The patient left the hospital free from pain.

The ultimate results were that when she was seen on Nov. 25, 1894, she did not suffer at all. Her menses were regular, less profuse than before the operation, and were painless.

The patient became pregnant and had her labor on Dec. 12, 1894, resulting in a living child weighing a little over six pounds. The postpartum was normal. The abdominal cicatrix remained intact and the patient has not suffered since this last labor.

CASE VII.—M. X. This patient had a cyst of the left ovary, and beside the symptoms due to her cyst, she had very severe abdominal pains with abundant and painful menstruation.

Laparotomy was performed on July 23, 1893, and showed a cyst of the left ovary which had begun to mortify and was adherent to the sub-hepatic region. The cyst was removed, and at the same time the corresponding adnexa, and then it was found that the right ovary was enlarged, whitish in color, with a smooth surface and filled with small cysts.

These cysts were burst open with the thermocautery and a large follicular cyst was resected and the walls sutured with catgut. Nine ignipunctures were also made as well as

the resection of a small subo-tubal cyst.

The patient was seen on July 6, 1894, and it was found that she no longer suffered from her abdominal

pains; her menses are now regular, normal in quantity and painless. She is completely cured.

[To be continued in July number.]

REVIEW OF GYNÆCOLOGY.

TREATMENT OF TUMORS OF THE MAMMARY GLAND. By WILLIAM I. RODMAN, M.D.

I shall offer an apology for asking your attention this evening to a brief paper upon the treatment of breast tumors. Often as the subject has been written upon and discussed, and great as have been the advances made, I feel assured that not only is the laity but the medical profession as well slow to appreciate the immense good following rational surgery practiced for the relief of mammary neoplasms. This belief, or rather unbelief, has in fact some foundation upon which to rest, for it must be admitted that prior to the last decade results were unsatisfactory, and surgery was justly looked upon as in the nature of a forlorn hope. Why was this so? The question is easily answered. It was due to false teaching as to the pathology of malignant growths. No surgeon believing in the constitutional origin of cancer—and nearly all did so believe twenty years ago—could look upon an operation as done to-day by any up-to-date surgeon as anything else than a dangerous and needless mutilation of the patient.

During my pupilage, which ended sixteen years ago, I have known many distinguished surgeons to re-

move breasts "to relieve pain," "to get rid of disagreeable odors," to "relieve the patient's mind," and only a few were optimistic enough to believe that an operation might prolong life. A cure was not thought of, much less expected. How different to-day! No one well informed believes in the constitutional origin of cancer or that the neoplasm is but the local expression of a general dyscrasia. That the disease is primarily local is accepted of all men. Then, if local, why not curable by free and early removal? Here, as elsewhere, the pathologist has blazed the way for the operator, and given him heart to sacrifice seemingly healthy tissue in order to get beyond the infected area, or the well-named "invisible zone." In no field of surgery is the aggressiveness of operators more to be admired than in dealing with malignant disease in general and that of the breast in particular, for it is here that the best work has been done.

To get some idea of the possibilities for doing good to suffering women, it is only necessary to remember that there are fourteen thousand deaths from cancer in the United States annually, two thirds of these (9,333) are in women; in 25 per cent. of all cases in the female lesion is in the breast, in about 25 per cent. in the

nterus, and in 50 per cent. in other parts of the body combined. Cancer is unmistakably on the increase all over the civilized world, and an increased liability to this most dreadful disease is one of the penalties a nation pays for its material and intellectual advancement.

If surgery could promise nothing more than to add one or two years of comfortable existence to each of the 9,333 lives annually yielded up to breast cancer in this country, it would still be an inestimable boon. I shall show that it is able to cure absolutely from 25 to 50 per cent. of all operable cases, according to the time of applying for relief, and to prolong the lives of incurables, as well as to allay pain and smooth the way to the grave. The medical man who makes light of a lump in the breast of one of his patients at this modern day takes upon himself an awful responsibility. In patients under forty years of age the chances for malignancy in a given tumor of the breast are rather more than ten to one. Past forty they are thirteen to one. When it is further remembered that innocent growths may degenerate into malignancy after years of quiescence prompt action is still more imperative. Do not wait for retraction of the nipple, which some suppose invariably to accompany cancer, for at most it occurs in but 52 per cent. of cases (Gross); other surgeons have not found it so often. Pain is even a more misleading symptom. All tumors in subjects past forty, however small and free from symptoms, should be promptly condemned to the knife.

The treatment of benign growths, solid and cystic, is simple enough. They should be removed along with their capsule, but it is unnecessary to ablate the entire organ. The nipple may in most instances be preserved, and this should always be done when

practicable, as it prevents deformity and leaves a gland more or less functionally active. It is not amiss to remember that innocent neoplasms are prone to affect the upper and inner quadrant of the gland. In all cases the surgeon should make an incision into the growth before removing the entire organ.

Keen, of Philadelphia, tells a good story of the immortal Langenbeck. While attending one of his clinics a patient was brought before the class with a supposed malignant tumor of the breast. Langenbeck had previously examined the case and felt certain of his diagnosis. He at once proceeded to remove the entire gland, in a rapid and brilliant manner. When the breast had been removed and an assistant was dressing the wound, Langenbeck, in the presence of the class, made a gash into the tumor to verify his diagnosis, and a liberal discharge of pus was the result. He looked surprised, but with great composure said, "I never did that but once before in my life." An incision before removal of the breast would have saved the great clinician some humiliation and the woman her mammary gland.

Malignant Growths. For all practical purposes we need make no distinction between carcinoma and sarcoma, as their treatment is the same. However, since sarcomas generalize by the blood and not by the lymphatics, it would seem unnecessary to clean out the axilla in all cases in the very thorough manner in which it is done—if the operation be rightly performed—in operating for cancer. I confess, however, that I make no distinction, and it is my belief that other surgeons do not. One of the most beautiful and thorough operations that I ever witnessed was done by Keen for sarcoma. He went to the clavicle in search of glands and fat,

leaving literally nothing in the axilla but vessels and nerves. There are three most excellent reasons why sarcomas demand the same thorough extirpation as cancers.

First, mistakes in diagnosis may be made, and one had always best err on the side of doing a radical operation.

Second, sarcomas do sometimes cause involvement of the axillary glands; not often, it is true; but if it ever occurs one should operate as if such a case was being dealt with.

Third, some of the most malignant growths ever encountered in the breast are sarcomata. I have seen one such growth in a pregnant woman destroy life within a twelvemonth. Of course the condition of pregnancy hastened its progress.

Before giving the technique of the complete or radical operation, as it is usually called—and I shall describe none other, it being the only one worthy of mention—I must insist upon the importance of educating women to believe that as soon as a lump is discovered in the breast safety depends upon getting the best surgeon to be had, and getting him as soon as possible. It is all important to remove malignant tumors before involvement of the axillary and other glands has occurred, as the chances of a permanent cure are at least four times greater before than after infection of these glands. It is not to be inferred that enlargement of the axillary lymph glands is of such bad prognostic import as to make such cases inoperable. Far from it, as a rightly done operation will cure 10 per cent. of such cases permanently. When patients apply before such infection, at least 40 per cent. may be saved, with a probable 50 or 60 per cent. Another point of importance: Patients will sometimes insist upon having only the tumor removed, and that part of

the breast and nipple shall be spared. This is natural, but it is a sentiment which should not be yielded to by the surgeon. The last case I operated upon was of this kind. I insisted upon being left unfettered, free to do what my judgment dictated, and declined to operate unless such was the case. As I had suspected, the tumor proved to be malignant and a very thorough operation was done, the axilla being invaded and cleared of glands and fat (of which there was a quantity) from base to apex. I have never done a more radical operation, and, notwithstanding the fact that the axilla was so radically attacked and a part of the pectoral muscle excised, the usefulness of the arm has not been in the least impaired. The crucial test, dressing of the back hair, can be as well done now, three months after operation, as ever.

Operation. I shall now describe the radical operation as practiced by a number of leading surgeons of this and other countries. A general bath should be given the patient the day before operation. The operative field should be most thoroughly disinfected, the armpit having especial attention: all hair should be removed. This being done, antiseptic gauze should protect the parts until the anæsthetic is given. A second thorough disinfection of the parts is then secured before the operation is begun. An elliptical incision—usually from the sternum to near the axillary margin—is made; but it may be from above downward (as in my last case), according to the location and size of the tumor. The amount of skin sacrificed should depend entirely upon whether it should be seemingly healthy or not. As a rule too little skin is removed, and on this account regional recurrences are not infrequently seen. The incision should

rapidly extend down to the pectoralis major muscle. The fascia covering it must go and every vestige of mammary gland along with it. It is unnecessary to lose time in applying forceps until the breast has been lifted out of the way but not detached from the axillary end of the wound. Good assistants will control hæmorrhage for the time being by pressure. (Most of the vessels enter from the axillary side of the wound, and hence will not be cut in the first stage.) An incision is now made along the lower border of the great pectoral muscle well up into the axilla. After cutting through skin and superficial fascia, it is well to discard sharp instruments for the blunt dissector of Allis, which in this operation is simply indispensable to one familiar with its use. The axillary vein, on account of its size and color, is soon seen, and from this time on is the key to the situation. With the blunt dissector and finger nail all lymphatic glands and the fat in which they are embedded must be searched for from base to apex. The space between the two pectoral muscles usually contains some large glands, and must not be overlooked. After this the space of Mohrenheim, between the tendon of the lesser pectoral muscle and clavicle, must be carefully examined for glands and fat. One can easily carry the finger into the subclavian triangle of the neck. When the axilla has been thus dealt with, vessels and nerves will stand out almost as prominently as in a dead-room dissection. One will be surprised at the small amount of hæmorrhage where there are so many vessels, if one is careful to use only blunt instruments. The only danger is the tearing of some large vein, which with reasonable care will not happen. It is important that the breast, axillary glands, and fat be

removed *en masse*. In this way no lymphatic channels are cut across, liberating juices and cells to infect healthy tissue.

The removal of the pectoral fascia has been shown by Heidenhain to be all important. The infiltrations of the disease will usually be limited by this fascia, but it is now and then necessary to excise a portion, perhaps most, of the muscle. It has not been shown, however, that Halsted's plan of invariably removing the great pectoral muscle in its entirety is necessary or advisable. Willy Meyer goes farther than Halsted and removes the lesser pectoral muscle at the same time. Halsted also removes the supraclavicular glands in all cases. I do not think surgeons will follow either Halsted or Meyer in their more radical procedures, as most of these operations are in elderly women, for which reason shock should not be increased and prolonged without compensatory advantages. As yet such advantages have certainly not been proven.

The wound should now be thoroughly dried. This is most important if the ideal method of dispensing with drainage is to be followed. A large dead space is left, and unless accurate approximation of the sides and edges of wound is secured suppuration will ensue. This, in my judgment, can be done, and primary union secured as a very general rule. Some surgeons, as Keen, prefer to drain with the tube for twenty-four or thirty-six hours; others do not drain at all. The latter method is the ideal one and the one most generally followed. I never use a tube myself, but cut an elliptical hole at the most dependent part of the axilla, which I find drains admirably well if the fat along the edges of the opening is freely removed. I formerly introduced iodoform gauze as a drain,

but have discarded it. The hole is all that is necessary and is free from objection. I have seen no one else follow this plan, nor have I known of its being recommended. The wound is now carefully brought together by interrupted silkworm-gut sutures, care being taken to avoid tension. Where the skin is scant one can by undermining it slide the flaps so as to gain space. (Shrady and other follow this plan.) If too much skin has been sacrificed for approximation, one must either treat the case as an open wound or immediately skin-graft by the method of Thiersch, and in this way avoid a tedious convalescence. In applying the dressing it is necessary to make firm pressure under the axilla, so as to obliterate the dead space left behind. If this be not done, fluids will accumulate and suppuration ensue. There is no more important step than the application of the dressing. I never, as in many other operations, trust this to an assistant, no matter how fatigued I may be. The arm should be confined to the side in the Velpeau position for forty-eight hours, afterward it may be freed. Some patients will complain of this position, and when they do I free the forearm, keeping the arm firmly bandaged at the side. This, as a rule, gives prompt relief. I change the dressing at the end of twenty-four hours, no other dressing being done until the sixth day, when I remove part or all of the stitches. My cases very generally run an afebrile course, and the patients sit up in forty-eight hours. A dose of morphine is seldom necessary.

Mortality. The English, with whom the complete operation originated, but who, strange to say, do fewer such operations now than are done by surgeons in this country, Germany, and France, would have us believe that the mortality following

is much greater than after simple excision of the gland. This would seem *a priori* to be the case, for opening such an important space as the axilla, filled as it is with many large vessels and nerves, is calculated to increase shock, to cause a greater loss of blood, and if not aseptically done is likely to be followed by sepsis variously manifested. But the statistics of American and German surgeons doing the complete operation are much better than the showing made by our British brothers, not only as to ultimate cure but as to mortality. Butlin, Treves, and Williams, of the English, all recent writers, place the mortality as high as ten per cent., which in the light of less than one per cent. mortality of six American surgeons whose results have been published within the last year, seem extraordinarily high, and can not be understood unless old statistics are included; for certainly the principles of asepsis—and that is all there is to it—are as well understood and carried out in England as anywhere. In my limited experience I can well remember when a breast amputation was a serious operation, and during my service in a Philadelphia hospital, in 1879 and 1880, there were deaths from erysipelas, pyemia, and secondary hemorrhage, the result of sepsis. Biliroth at one time admitted a death-rate in his own practice of twenty-three per cent. Asepsis has done as much for this operation as it has for laparotomy, and it is as unfair, to call out old statistics for the one as for the other. I once heard the greatest surgeon this country has ever produced (S. D. Gross) say that ovariectomy was an unjustifiable operation on account of its dangers. *Tempora mutantur et nos mutamur in illis.* While the careful training students get to-day, both in theoretical and clinical work, the tyro who fleshes his

maiden knife may look for better results than a master of bygone days. The results of Keen, Bull, Dennis, Weir, Halsted, and Powers, six Americans who within the year have published their statistics, show a mortality of less than one per cent. (six hundred and fifty-six operations and six deaths.) This number of cases, reported by entirely reliable men, is sufficient to settle forever the fact that the death-rate can not be excessive. I should say that it will be two or three per cent. with the average operator. In my own practice I have never lost a case nor had cause to feel the least anxiety about a patient.

Ultimate Results. We now come to the vital question, are women permanently cured by operation: and, if so, how often? Having served under S. W. Gross in Jefferson Hospital, in 1879, when he was about the only one in this country doing the radical operation, and knowing of his excellent results by seeing some of his patients years after operation, it is but natural that I, in the beginning of my professional life, become a believer in the curability of breast cancer. To doubt was, as Virchow recently said, "to resist the brute force of facts." On other occasions in this Society I have taken advanced grounds on this subject, and perhaps made myself liable to the charge of optimism. I am prepared to go farther to-night than ever before, and shall give statistics from unquestioned sources to justify my position. From the 12 per cent. of cures claimed by Gross and Banks in 1880 we have gotten to the 25 or 50 per cent. of 1895. Until recently Bull, of New York, with 26.6 per cent. of recoveries, held the record. Dennis, of New York, the late president of the American Surgical Association, in his address before that body in May last, gave the result of his life-work in malig-

nant disease. He had records of thirty-eight breast amputations for carcinoma, seventeen of which had passed the three-year limit and were justly called permanent cures. This is 45 per cent. He also reported 66 2-3 per cent. of cures in sarcomas of the breast (six cases, four recoveries). This is too small a number to generalize from. It will, however, be admitted that the prognosis in sarcoma should, as a rule, be somewhat better than in cancer.

For complete details W. T. Bull's series of one hundred and eighteen cases is still the most satisfactory yet published, as he leaves nothing to be conjectured. Forty per cent. of his cured cases had axillary involvement, as shown by microscopical examination. In cases where there was no such involvement he secured 54 per cent. of cures.

Halsted's series of seventy-six cases was apparently a good showing, but sufficient time had not elapsed since operation in nearly all of his cases. Keen, unfortunately, has not kept a record of all of his two hundred cases, but thinks we should get from 25 to 50 per cent. of cures.

I will close with the following propositions:

First, all mammary growths should be removed at once, for innocent tumors carried for a long time become a menace.

Second, the complete operation should always be done in cases of malignant disease.

Third, in nearly every case it is simply impossible to detect enlarged glands until the axilla is opened. Keen says that he can not do so once in ten times.

Fourth, the mortality should be with average operators about three per cent.

Fifth, a radical operation should promise from 25 to 50 per cent. of

permanent cures, according to the time when patients apply.

Sixth, when in doubt, operate; never wait for symptoms.—*American Practitioner and News*, March 7, 1896.

SENILE ENDOMETRITIS.

A. J. C. Skene (*Amer. Jour. of Obs.*) considers this condition quite different from the endometritis of early life. While in some cases it probably is a continuation of an inflammation which existed prior to the menopause, it is not so in the majority of cases. The disease may be limited to the cervical canal, but usually it includes the entire mucosa. It is as a rule suppurative, the discharge being sero-purulent, and when it begins as a catarrh it generally progresses to the suppurative form. The epithelium of the endometrium becomes almost entirely lost; granulations of low vitality spring up; minute extravasations of blood are seen with small pigment spots; atrophy of the muscular tissue was present and caused inversion of the mucous membrane; laceration of the cervix frequently existed; stenosis of the internal or external os was often present; pus would be discharged and again accumulate. When the disease had existed long enough to destroy the mucous membrane it might end in cicatrization, but it could scarcely be called self-limiting. Displacement, laceration of cervix, and a continuance of endometritis existing from early life are some of the causes of this attribute. Inattention to cleanliness, also fibroma, may cause it. The treatment consists of the use of the douche of a solution of borax or sulphate of zinc, if the inflammation is confined to the cervix. Medicated tampons, astringent and alterative applications, are helpful,

but no caustics. Iodoform applied in the uterine cavity is very efficient, but its odor is objectionable. Complete closure must be overcome when it exists, and dilatation and drainage performed. Dilatation must be done gradually by graduated dilators. The complete removal of the uterus may be justified after other measures have been tried and failed and when complete prolapsus exists, vaginal hysterectomy is the proper treatment.

PUERPERAL INTERMITTENT FEVER.

Dr. Solowieff (*Revista de Ciencias Medicas de Barcelona*) from three cases of this rare complication of childbed and a study of the literature, concludes as follows:

1. Intermittent fever during pregnancy and childbed is a rare disease.
2. Diagnosis and treatment are necessary, as it may influence the mother and fœtus, causing either abortion or death of the fœtus.

3. In childbed it may prevent the secretion of milk and the involution of the uterus.

4. It is to be distinguished from other febrile affections of the puerperium, and especially puerperal septicæmia.

5. The treatment is the same as in the non-pregnant, yet it is useful to combine quinine with opiates.

6. In nursing women with intermittent fever the tannate of quinine is indicated; opium, if used, will dry up the secretion of milk.

7. In asthenic parturient women, small doses of arsenic are of service.—*Medical and Surgical Reporter*.

URINATION AFTER LABOR.

Dr. N. Recht (*Rev. Internationale de Biblog. Méd.*) in a thesis has made a study of micturition in the lying-

in period. He comes to the following conclusions :

1. Urination, after labor, in the majority of cases, follows spontaneously.

2. Catheterization is but exceptionally required: if it be necessary, it should be deferred as long as possible.

3. It is only indicated when the bladder assumes abnormal proportions, or if retention occurs.

4. Catheterization is liable to occasion two evils—cystitis, in spite of all precautions, and dependence of the bladder for a time upon the catheter.

THE RESULTS OF ABDOMINAL HYSTEROPEXY AND ITS INFLUENCE UPON PREGNANCY.

Leon (*Prov. Med.*, No. 6, 1895) writes that the results of abdominal hysteropexy shown in the paper published by Laroyenne, that pregnancy occurring after this operation is usually followed by abortion, is due to faulty technique, the method of placing the sutures between the abdominal wall and the uterus. Leon gives the following rules to be observed in this operation :

1. The sutures should not be removed.

2. The number of sutures should be sufficient.

3. The sutures should be placed through the anterior wall of the uterus and not the fundus.

4. The sutures should include sufficient tissue; at least one-half centimetre.

From the observations of Laroyenne and the greater number of French surgeons, the adopted technique of the operation does not allow the physiological growth of the uterus during pregnancy, and besides, the adhesions are not firm enough. Of sixty cases operated upon by Laroy-

enne, three became pregnant; of these one proceeded to full term and two aborted in the first month. The writer believes that abortion in these cases was induced early in pregnancy because the fundus and not the anterior uterine wall was sutured.—*Univ. Med. Mag.*

OVARIOTOMY AND COLPORRHAPHY.

By HENRY C. COE, M.D.

CASE I. This patient belongs to a class which a few years ago was quite common; in fact, it included the majority of those who submitted to abdominal section in this hospital. When I was house surgeon to this institution, thirteen years ago, ovariectomy was about the only abdominal operation which was performed, with the exception of a rare hysterectomy for large fibroids or fibro-cysts. It was not unusual to meet with patients with ovarian cysts, who had refused operation for several years, and had been tapped a number of times. We always expected to meet with extensive adhesions in those instances, and we were seldom disappointed. A large ovarian tumor is now quite a rarity, in this city, at least, as they are almost invariably cut off in their youth, or while they are still in the intra-pelvic stage. Moreover, tapping is fortunately a rare procedure, at least in medical centres, since it is generally understood that this offers only temporary relief, and complicates a subsequent radical operation.

This patient's history, although short, contains several points of practical interest, since it shows how large these tumors may become before they attract the patient's attention, or give rise to either local or general symptoms.

She is sixty-four years old, and has always enjoyed good health until

recently. She has been married forty-six years and has had several children, the youngest one being thirty years of age. She has never had any pelvic trouble, and passed the menopause at the usual time. Her attention was first directed to the abdominal enlargement in December, when she accidentally received a blow in the pit of the stomach. I would have you note this point in the history, as it frequently occurs. The patient herself, and often her physician, are misled by some slight traumatism, to which they attribute the development of pelvic troubles, which had already existed a long time. I have no doubt that the tumor in the present case had been growing for years. It may be that the injury caused an acceleration of the growth, or directed the patient's attention more particularly to her abdomen, so that she noticed the increasing size. At any rate, after January, it began to enlarge rapidly, so that her breathing was interfered with. She did not notice that one side was more prominent than the other, and the enlargement seemed median and symmetrical. She was tapped by her physician in April and again in May, several quarts of dark fluid being removed. The cyst rapidly refilled, and her general health declined. She lost flesh and strength, was troubled with dyspnoea, irritability of the stomach, and swelling of the lower limbs, but no particular pain. I have had her under observation in the hospital for a week, in order to get her into the best possible condition. I have felt considerable anxiety on account of one symptom, that is renal insufficiency. The first two or three days after her entrance she passed only six or eight ounces of urine in twenty-four hours, and in spite of the free administration of fluids and diuretics, the greatest amount excreted has been

thirteen ounces. So far as we have been able to determine, by careful chemical and microscopical examinations, the urine is perfectly normal.

The diagnosis in this case is simple, the only enlargements to be distinguished from it being ascites and some uterine tumors. The dullness over the anterior surface of the growth, with tympanitic resonance at the sides, not affected by change in positions, as well as the absence of the general fluctuation, and peculiar contour of the abdomen, distinguish it from ascites. As I am able to feel a small uterus in front of the tumor, but not connected with it, I exclude fibroid. It is also possible to state definitely that the cyst is probably multilocular, because we can feel through the thin abdominal wall one compartment in which fluctuation is rapidly apparent, and another in which the sensation imparted to the finger is that of a thick, semi-solid material. The mass is not freely movable, and, as I have stated before, the fact that the patient has been tapped leads me to suspect the presence of adhesions. The question naturally suggests itself, in view of the rapid growth of the tumor, and the patient's failing strength, whether it may not have undergone malignant degeneration. This suspicion, is rendered stronger by the presence of a certain amount of ascitic fluid, which it seems to me I can detect between the anterior surface of the cyst and the abdominal wall. You observe how marked is the so-called *ovarian facies*, so graphically described by Spencer Wells. The patient's face bears a strong resemblance to the illustration in his book.

I shall not place the patient in the Trendelenburg posture, as I wish to turn her on the side when I tap the cyst. The vagina has been rendered thoroughly aseptic, as well as the ab-

domen, because one never knows when he may find it necessary to remove the entire uterus.

I make an incision about four inches long, in the median line of the abdomen. The diagnosis is confirmed at once, as soon as the peritoneum is incised, and you see the smooth, glistening surface of the cyst. There is a moderate amount of free ascitic fluid. Introducing my hand, I sweep it over the anterior surface of the tumor, which is comparatively free, with the exception of some slight parietal adhesions. Turning the patient on the side, I protect the edges of the wound carefully with flat sponges, in order that no fluid may escape into the cavity. Many surgeons are indifferent as to whether this occurs or not, but I believe that one is always on the safe side in avoiding the accident, especially when dealing with colloid cysts, or those in which the character of the fluid is doubtful. Plunging a large trocar into the exposed surface of the cyst, I withdraw several quarts of dark gelatinous fluid. But this reduces the size of the tumor only slightly, so that I shall remove the trocar, enlarge the opening with my scissors, and with my hand break up and evacuate the contents of a number of secondary cysts. Making traction on the cyst, I gradually draw it out until adherent loops of intestine appear. Now, having carefully cleansed the parts with hot sterilized salt solution, we turn the patient on her back again, protect the edges of the wound with warm towels, and rapidly peel off intestinal and omental adhesions, tying a few which seems to be specially firm and vascular. The cyst is so intimately adherent to the uterus, that it is evident that the entire organ must be removed, particularly as there is a

similar cyst of the opposite ovary. Drawing the uterus well upward with the volsella, I tie off the upper portion of the broad ligament upon each side, and cut them away, clamping the divided proximal ends of the stumps, in order to save as much blood as possible. Carrying the scalpel straight across the anterior surface of the uterus, above the attachment of the bladder, I rapidly peel off the latter organ with my finger, down to the level of the os internum. A shorter posterior peritoneal flap is made in a similar manner. The uterine arteries are now both exposed, and it is a simple matter to include them in ligatures. I then complete the dissection, and remove the entire uterus.

There seems to be a good deal of hæmorrhage down in the pelvis, so we shall elevate the patient in the Trendelenburg posture, and look for the source of it. I have found it—the vaginal artery on the right side, which is spouting vigorously. It is easily controlled by a deep suture.

At this point the patient seems to be suffering a good deal of shock, which I expected, on account of her age, weak condition, and the severity of the operation, although she lost but little blood. We gave her 1-20 of a grain of strychnine hypodermatically before the operation, which is now repeated, and an enema of hot salt solution, containing two ounces of whiskey, will also be given. Lowering her to the horizontal position, I shall irrigate the cavity thoroughly with hot saline solution, leaving a portion of it, as it will readily drain away through the vagina. There is quite a raw surface left to be exposed where the cyst was enucleated, so that I shall pack it thoroughly with gauze bandage, carrying the ends through into the vagina.

We are now ready to close the

abdominal incision, apply the dressing, and get the patient back to bed as quickly as possible.

Her pulse has improved, and although weak, is not over 90, while her color is good. Do not be too much alarmed in this class of operations by the presence of a certain amount of shock; so long as the patient's color is good, and her pulse, though feeble, is not very rapid, there is no occasion for undue alarm, or for slurring over any of the necessary details of the operation in order that she may not die on the table. The surgeon should always avoid being "rattled" by the comments of the anesthetizer or bystanders. His whole attention must be concentrated upon the operation, so that not a single detail may be omitted, even under the most trying circumstances.

CASE II.—This patient illustrates a condition which is very common, and yet is of so great practical interest that I shall speak of it at some length before beginning the operation.

She is a young married woman, who, during a severe labor has sustained the injuries with which you are so familiar—laceration of the cervix and pelvic floor—so that the uterus, in consequence, although not retroverted, is large and heavy, sags downward to the floor of the pelvis, and gives rise to those constant bearing-down pains which you hear so frequently mentioned at the clinics. Her general health is good, menstruation not profuse, and, in short, her condition is by no means serious. The object aimed at in performing the operation, is not alone to remove the existing symptoms, but to prevent an aggravation of the present trouble, which will certainly occur if she goes for six months or a year without any treatment.

Having been thoroughly prepared

as for a capital operation, and being in the dorsal position, which is the most convenient one when we propose to do several operations at one sitting, I depress the perineum with a Sims' speculum, seize the anterior lip of the cervix with the bullet forceps, and steady it. You see at a glance that there is a complete absence of support, so that the uterus almost protrudes from the vulva, although it remains anteverted. I shall first curette the uterine cavity, which I do in every case as a preliminary measure, previously dilating the cervix, first with graduated steel bougies, and then with a Wathen's dilator. The caution to avoid undue pressure in using this powerful instrument is by no means superfluous, especially when the cervix is softened by disease or by previous laceration. I have twice torn through into the sub-peritoneal space, yet without any untoward result. Before the days of modern asepsis such an accident might have been fatal. On curetting the cavity, you see that there is a moderate quantity of granulations. The uterus is not very large, about three and a half inches in depth. Having irrigated thoroughly, I am ready to close the laceration. This is a simple case, requiring only three sutures on each side. I use silver wire for the reason that it is more easily managed, for it is possible to obtain the exact amount of tension which is desired. Many operators use silk or silk-worm gut, or even carbolized catgut, with equally good results. Before twisting the last suture, pass a good-sized sound, in order to be sure that the canal is patent. This precaution should never be omitted. It is rather mortifying to be called to a patient upon whom one has operated several months before, in order to relieve obstructive dysmenorrhœa, due to too tight clos-

ure of the canal, and although you take some pride in a neat operation, you must never sacrifice too much to mere æsthetic considerations. Having irrigated thoroughly, I place a piece of gauze against the cervix to absorb the blood, and am now ready for the plastic operations on the vagina.

There seems to be so much redundant tissue in the anterior wall that I shall take a reef in it by doing an anterior colporrhaphy according to Stolz's method. Not that I consider this is a scientific operation; in fact it strikes me as peculiarly unsurgical to make a large, raw surface, and then to pucker it up with a purse string suture. The operation is quite simple; it consists in picking up a point in the centre of the cystocele, cutting out a small bit of tissue, and enlarging this circular wound until it is about the size of a twenty-five or fifty cent piece. Just one caution here, in plastic work on the vagina. Remember that you must take off delicate strips of tissue, since you are working on a very thin septum. Never allow the points of your scissors to be out of sight—keep them always in view, and cut parallel with the surface to be removed. In this way, you will avoid going too deeply, and thus opening up large venous sinuses, or even button-holing the bladder or rectum. After removing some little islands of undenuded tissue and again irrigating, I take a straight needle, with a hypodermic point, threaded with a long silk suture, and go in and out just at the edge of the denuded surface, the point of exit of the needle being about an eighth of an inch from its point of entrance, and at a distance of an inch behind the meatus. Drawing upon these two ends, you observe that I pucker up the raw surface, just as a tobacco bag is closed by its string. An assistant pushes

down the raw surface while I am tying the suture, so that it is now turned in out of sight.

The last operation is Hegar's posterior colporrhaphy, which you have seen so often.

Select a point high up on the posterior vaginal wall and other points inside of the labia below; putting these on a stretch with tenacula, a triangle is formed. This is denuded, and the opposite edges are brought together with sutures of silk-worm gut.

The point to be noted is that the denudation is entirely within the vulva, the tear itself being internal. —*The New York Policlinic*, Jan., 1896.

THE PUERPERAL PALSIES DUE TO NEURITIS. A CLINICAL LECTURE DELIVERED AT THE MEDICO-CHIRURGICAL HOSPITAL. BY CHARLES W. BURR, M.D.

I propose to study with you today the symptomatology of certain palsies which occur after labor, and are caused by neuritis. The puerperal palsies due to lesions of the brain and spinal cord we will take up later. The history of the patient before us is as follows: Mrs. M., married nineteen months. Six weeks ago she was delivered at full term of her first child. The labor was very hard and forceps were used. During and after labor she complained bitterly of pain in the legs. Within a few hours after the end of labor the left leg became distinctly paretic. The palsy gradually increased, and at the end of a week was so severe that the patient could not move the foot at all, and could flex and extend the knee only a few inches. Meantime puerperal sepsis appeared, on account of which she was brought to the hospital and put under the care of Dr. Ashton.

He performed hysterectomy. The operation was successful, and the therapeutic result good. Fever has disappeared, and her general condition excellent. She now complains only of the trouble in her left leg. Let us examine it. The toes and foot are still completely palsied, but she can flex and extend the knee quite well, and there is moderate power of movement of the thigh. Light touch on the skin anywhere is either not felt at all, or is wrongly localized. On the other hand, there is general muscular soreness in the entire leg increased by pinching or pressing on the muscles. Pressure over the sciatic and popliteal nerves causes exquisite pain. The thigh muscles are slightly, the calf muscles greatly wasted. The limb is slightly cooler than the right, and its circulation is poor. The left knee jerk is very much diminished, the right, normal. There is no ankylosis. The plantar reflex is absent on the left side, present on the right. There is no palsy or anæsthesia of the right leg. The bladder and rectum are under complete control.

The diagnosis in this case, both as to the localization of the lesion and as to its nature, is not difficult. The lesion can not be in the brain, because if such were the case, the palsy would have been more apt to have involved an entire side, arm and leg, both, rather than only one extremity, though, as you know, this hemiplegic or monoplegic distribution is not conclusive, since a brain lesion does, at times, affect only one limb. But, further, in a brain lesion there would be no pain or pressure over nerve trunks, and no wasting of the muscles, except the very slight degree of it dependent on long disuse, and the knee jerk, instead of being diminished, would be increased, and ankylosis would now be present. We may

then exclude all brain trouble with certainty. A lesion of the spinal cord also would not produce the picture the patient shows us. There would in such a condition be no pain in nerve trunks. The symptoms would have been more extensive, involving both legs, bladder and rectum. The lesion must, therefore, be situated in the nerve trunks. And as a matter of fact, it is so, being a neuritis set up by the pressure of the child's head, and probably to a greater or less degree by bruising with the forceps.

Some of you probably thought while listening to the history of the case that I was playing a little trick on you, and showing you a patient that had no nervous disease at all, intending to catch you napping when I called for a diagnosis. If any of you made this mistake, you thought, of course, of thrombosis of the femoral vein as the cause of the symptoms, and though the two diseases are as wide apart as well could be, it may not be out of place to recall to you the symptoms of puerperal phlegmasia dolens. That condition does not begin during labor, but develops, at the earliest, some days later. There is great swelling usually beginning in the groin and extending downward, but occasionally appearing first in the calf. The venous trunks are swollen, painful, and hard. The leg is motionless, not because it is palsied, but because movement causes pain. The septic poisoning from which our patient has suffered has had nothing to do with the palsy, since it occurred after the palsy was thoroughly established. How much the use of the forceps had to do in causing the palsy it is difficult to tell. This much is certain, that often forceps must be used not only for the mother's sake, but also for the good of the child, and that very frequently delay

in interference in labor has resulted in serious injury to the brain of the child, the long continued pressure causing some of the incurable birth palsies which you have seen in the clinic. It is probable that more of these birth palsies are due to the non-use, than to the use of forceps. As with all instruments, usefulness or danger depends upon the skill of the operator.

Our case is an example of the commonest type of neuritis following labor. Almost always when the injury is due to the pressure of the head only one leg is affected. In cases with a similar symptomatology, but with involvement of both legs, the cause is ordinarily a pelvic inflammation affecting the sheaths of the nerves, or compression by pus, or contracting lymph. The diagnosis here is between bilateral neuritis and acute myelitis. The differential points are the severe pain in neuritis and the palsy of the bladder and rectum which occur in myelitis. There is a rare form of paraplegia, which follows excessive hæmorrhage from the uterus, stomach or kidneys, or indeed from any part. Usually there is no affection of sensation, but the legs may be hyperæsthetic. The palsy may come on a few hours after the loss of blood, or not for several days. The pathology is unknown. Most cases recover. Finally, there is a form of paralysis occurring in the puerperium which is altogether unlike any of the above—a multiple neuritis involving widely separated nerve trunks. Very often the end branches of the median and ulnar nerves chiefly suffer, the legs being affected only late in the attack. The condition resembles in many ways alcoholic neuritis. It is probably often due to a poison, and in some cases, at any rate, the poison is alcohol, pregnancy being simply a predisposing cause in the nerve, that

during pregnancy the resistance power of all times is more or less diminished. —*The Medical Fortnightly* Jan. 1896.—

THE INDUCTION OF LABOR IN NEPHRITIS, WITH REPORT OF CASES. By DR. WILMER BRINTON.

I have been induced to bring the subject of the Induction of Labor in Nephritis to your notice by the reading of a paper on "The Significance of Albuminuric Retinitis in Pregnancy," written by Dr. R. L. Randolph, of this city. Dr. Randolph reports five cases of albuminuric retinitis occurring in pregnant women whom he has seen during the past two years, in which cases he decided by ophthalmoscopic examination whether it was the proper treatment or not to induce labor for the purpose of saving the eyes and perhaps the life of the woman. In the cases related not only were the eyes saved where labor was induced, but in the cases where he advised the continuation of pregnancy, the women escaped eclampsia. Judging from the first case reported by Dr. Randolph there must be some difference of opinion even among oculists as to when premature labor should be induced, for the report of this case which I shall now read will show that the first oculist consulted advised a different method of procedure from that recommended by Dr. Randolph.

CASE: Mrs. M., thirty-one years old, three children living, and up to the fourth month of her third pregnancy had enjoyed good health. In the early part of the fifth month she began to have violent headaches, which could only be relieved by strong anodynes. They persisted for two weeks, when she noticed that her sight was growing dim. It contin-

ned to grow worse until she was practically blind in one eye, and the sight of the other but little better. At this time an oculist was called in, who pronounced it albuminuric retinitis and found the urine rich in albumen and some casts present. The induction of labor was advised, performed, and a dead child born. The woman had convulsions, but recovered with complete restoration of sight. One year later she again conceived and in the fourth month was attacked with similar headaches. Fearing that her sight would again become bad, she consulted an oculist again, who advised that if she waited for normal labor she would lose her sight and probably her life. Dr. Kelly was sent for to induce labor, but referred the case first to me. I found the vision 20-15ths in both eyes, and a low grade of hyperopic astigmatism. I found absolutely nothing to denote progressive disease in the fundis. The question was whether or not to induce premature labor. There was a faint trace of albumen in the urine, but no casts. I concluded that the evidence did not justify the operation. My advice was followed and the patient sent home to give birth a few months later to a boy.

The conclusions of this interesting paper were as follows: 1st. Visual disturbances occurring in the first six months of pregnancy, and especially when associated with violent headaches, frequently mean albuminuric retinitis, and if this condition is found to *save sight* pregnancy should be at once terminated. 2d. Visual disturbances showing themselves in the last seven weeks of pregnancy, while indicating the same retinal lesions, are of less gravid import in so far as sight is concerned, and unless they are very pronounced and associated

with widespread ophthalmoscopic changes, should not in themselves call for the induction of labor. 3d. The occurrence of renal retinitis in one pregnancy does not mean that the woman will be likewise affected in a subsequent one. And even though headache be present, and albumen found, so long as the fundi are free from signs of existing retinitis the question of sight will not be considered.

The very grave prognosis in cases of eclampsia occurring in the pregnant woman, the woman in labor, or the parturient, makes the question of nephritis a very interesting one to the obstetrician. Experience and statistics prove that women who have chronic nephritis conceive and carry their children to full terms without having convulsions. Indeed it seems that if they do not abort they are less liable to eclampsia than women who for the first time develop kidney disease during pregnancy. Cases of nephritis occurring in the pregnant woman, whether chronic or acute in character, must make the physician in charge anxious about the outcome of the case, for the rates of mortality vary from 25 to 40 per cent. for the mother and from 50 to 75 per cent. for the child when we have eclampsia occurring during pregnancy, or before the completion of pregnancy. The question comes to us for decision whether we shall follow conservative treatment, which at best will only ward off impending danger, or whether it is best to place the patient at once in a position of comparative safety by the induction of premature labor. Dr. Lusk says: "The weight of authority seems to me favorable to procrastination, the interruption of pregnancy being regarded as an extreme measure justifiable only in case of utmost peril. But my own con-

victions are clear that so soon as grave cerebral symptoms develop the period of folded hands has passed."

The four cases I shall report have come under my notice during the past eighteen months, and while in only two cases was premature labor induced, previous to convulsive movements, yet in the other two, although only seen first when in convulsions, premature labor was induced, as they were not at full time.

CASE I.—Mrs. R., mother of nine children and between seven and eight months advanced in her tenth pregnancy. Her physician had watched her closely for some weeks and made diagnosis of nephritis. He found albumen and casts in the urine, specific gravity 1010. Eyesight very much impaired and rapidly growing worse; headaches violent for days and several times had had convulsive movements. At my first visit we decided upon premature labor, and and, under strict antiseptic precaution, I introduced a bougie at 4 P. M. on Friday afternoon. At midnight of the next day she was delivered of a living child. During the time of the induction of labor she had to be kept under the influence of potassium bromide and chloral hydrate. For a week or two both mother and child did well, but finally all her symptoms grew worse, she became totally blind, went into coma, and died, two months after the birth of a child.

CASE II.—Mrs. A., forty years of age; pregnant for the ninth time and supposed to be eight months advanced. She was blind, cedematous, pulse rapid and urine full of albumen. There were very marked indications of beginning convulsions. Treatment had been: infusion of digitalis, compound jalap powder, and chloral hydrate and bromide of potash. I introduced a bougie as in Case I.

Hot vaginal douches were given, and some eleven hours after the mother was delivered of a living child. Some nine months after, her physician writes me that the child died within a month, but that Mrs. A. recovered with good sight.

CASE III.—A colored out-patient, with a history of eleven convulsions, before my assistant saw her. An examination showed pregnancy of eight months. Child living, woman aged seventeen. She was removed to the hospital; chloroform, bromide of potash and chloral hydrate given to control convulsions. Bougie was introduced, but later we had to dilate with the finger. Simpson's forceps were applied, and after great traction a dead child delivered. The mother never regained consciousness. Died four hours later, having had fifty or sixty convulsions.

CASE IV.—Mrs. V. C., in her first confinement. All during her pregnancy had been well. Had been on the street the day previous and slept well that evening. In the morning, while at breakfast, she suddenly clapped her hands to her head, cried "I can not see," and fell to the floor in violent convulsion. Within thirty minutes she had six more. Chloroform was given during the convulsions, and chloral every hour during the intervals, when the patient had intelligence enough to swallow when told to do so. With the assistance of Dr. Watson, dilation was made by the finger. Simpson's forceps applied and a living child delivered. The woman had in the next thirty-six hours about ten severe convulsions, and was practically unconscious for forty-eight hours afterward. Hypodermics of morphia of one-third of a grain were used, and we saw marked results for good after each dose. She gradually grew better, but complained

of bad sight and violent headaches for nearly two weeks. She has done well ever since.

In the brief report of these cases I have only mentioned a few of the many methods of inducing premature labor, but in closing I wish to commend the method of dilating the cervix with the finger.

ON THE TECHNIQUE OF THE INTRODUCTION OF PREMATURE LABOR.

Müller (*Munchener medicinische Wochenschrift*, XXXI. 4, 1894) reports the following case: Mrs. F., aged forty-one years, rachitic, having diagonal conjugate of 9.5 centimeters, severe struma, XIV-para, delivered three times by artificially-induced premature labor. Her children, except one boy, died in birth, soon after or within two and a half years. The previously induced premature labors, which were induced by the passage of a bougie, lasted five days fourteen hours, thirteen hours, and eight days nine hours respectively. The fifteenth pregnancy was interrupted at the seventh month by Pelzer's method of injecting 100 grammes of sterilized glycerine. Ten minutes after the injection there was vomiting, the bowels acted, and a rigor of one hour's duration occurred. With severe dyspnœa the temperature mounted to 40.5 deg. C. (10.4 deg. F.), and the pulse to 156. Twin birth occurred. After eighteen hours, the first child, weighing 790 grammes, was expelled, and died in one and a half hours. Forty-eight hours after, the second one was expelled dead, and weighing 850 grammes. The temperature dropped quickly to 38 deg. C. on the second day. The patient was discharged on the seventh day. During labor and a few days afterward, the urine was a dark red-

dish-brown color, produced by the presence of methemoglobin and hematoporphyrin.

Regarding the quickness of action, the Pelzer method in this case corresponded to Müller's expectations, but the reaction was so trying that it appears clearly indicated that one should use a less quantity of glycerine in the future.

Müller considers that the reflex stimulation of the heat centres through the irritation exercised upon the uterus was the cause of the repeated rising of temperature.—*University Medical Magazine*.

THE DIAGNOSIS AND TREATMENT OF EARLY CANCER AND CYSTS OF THE BREAST.

At a recent meeting of the Medical Society of London, a report of which appears in the *Lancet* for December 14, Mr. Bryant read a paper on this subject. He said he had been induced to write it on account of a series of cases of cystic disease of the breast, most of which had been diagnosed as being cancerous tumors, having recently passed under his notice; and he was convinced that such errors of diagnosis might be diminished by care and thought. He admitted that typical examples of cancer as well as of adeno-sarcoma were usually readily recognized, and that difficulties of diagnosis, and consequently uncertainty of treatment, chiefly occurred when any or many deviations from the typical examples were met with. He divided his cases, in which difficulties of diagnosis were liable to occur, into the three following groups, the divisions being based on clinical symptoms alone: Group 1 included cases in which either young, middle-aged, or even old married or unmarried woman there was some enlargement or thickening of one lobe of a mam-

mary gland, without any external evidence of wrong, either in the integument covering the affected lobe of the breast nipple, or lymphatic glands. Group 2 comprised cases in which there was a distinct and very evident lump, the size of a walnut, shelled or unshelled, and inseparable from the breast gland, with some of the local conditions generally accepted as being indicative of a cancerous tumor, such as a flattened or retracted nipple, with or without an enlarged lymphatic axillary gland. Group 3 included cases in which, in one middle-aged woman past child-bearing, the breast gland feels to be generally, or in one or more of its lobes, harder than natural, coarse or knotty, the knots varying in size from small to large peas or nuts, and where there might be at times, with or without the application of pressure upon the gland, some discharge from the nipple of either a clear yellow or blood-stained fluid, or some cheesy pultaceous material, associated or otherwise with an enlargement of some lymphatic glands. The author took up each group separately and pointed out the questions which came before the surgeon with reference to diagnosis and treatment. In Group 1 the main question to decide, he said, was whether the local lump of induration was an early cancerous tumor or a cyst, or, if in any way connected with lactation, a chronic abscess. If probabilities pointed to its being cancerous in its nature he showed how important it was to have the diagnosis clear and the local disease removed; for such a measure, when undertaken at the very earliest stage of incipient infiltration, was far more likely to be followed by a permanent cure than when performed at any later stage. For this purpose he advocated in these an early exploratory incision as preliminary measure to an

excision of the growth and gland should the diagnosis of carcinoma be verified. He said he had followed this practice for many years and with the best results. In Group 2, in which there was a distinct tumor present and the question for diagnosis lay between a local cancer and a cyst. Mr Bryant pointed out the wisdom of the question of cyst always having a first place in the surgeon's mind, for he believed it was from a neglect of this habit of thought that so many mistakes in diagnosis were met with. He drew attention to certain methods of examination which facilitated diagnosis, and to the value of different objective symptoms which might be present in the different cases.

He illustrated this group, with its treatment, by giving brief notes of many interesting examples, and pointed out that these cases had mostly occurred in women after forty years of age. The disappearance of cysts by time and treatment was then discussed and illustrated by cases, but Mr. Bryant stated that such cases as these were not common, and gave no support to a practice which allowed the local trouble to continue without treatment. He believed that cases of reputed disappearance of adeno-sarcomata and of cancer were examples of mistaken diagnosis, and in reality were cysts. He had never known a tumor which was solid to disappear without surgical assistance. The reappearance of cysts which had been said to have disappeared spontaneously years before was also pointed out, and the remark made and illustrated that in one case the re-enlargement of the cyst might be genuine, and that in another the cysts might be of the proliferating kind. The third group was finally considered and the clinical features of the cases included in it carefully described. Such cases, he said, were too

often regarded as being cancerous. The points for diagnosis were emphasized, and the subject illustrated by three cases worthy of study. He expressed his belief that in the three groups of cases to which he had drawn attention his hearers would be able to find a place for most, if not all, the doubtful and difficult cases which would come before them, and he felt assured that if they would carry to the bedside the thoughts and methods of investigations to which he had drawn their attention, their difficulties—which had been his difficulties—would be found to lessen, if not disappear, and that at any rate a working diagnosis could be arrived at in most of the cases upon which a sound treatment could be based, and that of drifting avoided, to the advantage of the patient and the credit of the profession.

Mr. Marmaduke Shield said that the subject of the diagnosis of these cases was one of great interest and importance. Surgeons who possessed the accumulated experience of a large number of years were the only ones to speak on this subject with confidence. Mr. Bryant had used the term adeno-sarcoma to describe some of these cases, and to the speaker's mind no cases were more difficult to diagnose than sarcoma of the breast. Many cases classified after microscopical examination as adenoma had recurred and were ultimately classified as sarcoma. As to the treatment of chronic induration of the breast, he asked, were large doses of liquor potassæ to be recommended, of the internal administration of mercury and iodide of potassium with local strapping? From his own observations he was convinced that a certain number of these cases were syphilitic. He had seen cysts of the breast with such thick walls and so greatly distended with fluid that

neither elasticity nor fluctuation could be recognized; such swellings had frequently been removed for cancer. The difficulty about the exploratory incision was the formation of a scar upon the breast, and he inquired if tapping with a fine trocar and injection with iodine would not suffice to cure some of the simple cysts. He had met with a case in a woman aged forty who had a hard lump in her breast. He had explored it with a large trocar and cannula and had found nothing. He had then removed the breast, when he found a very thick-walled cyst containing putty-like material, no doubt a galactoele of ancient date.

Mr. Turner related the case of a woman who had suffered from sarcoma of the thyroid gland. He had done a low tracheotomy and the growth had almost disappeared. It had grown again and then once more had shriveled up. She had died from some other affection and at the autopsy the diagnosis of sarcoma had been confirmed. Mr. L. Bidwell stated that in two cases of cysts which he had seen simple aspiration had been employed and been followed by recovery. In cases of tumor of the breast with retracted nipple, he said, it was often difficult to decide whether they were carcinomatous or inflammatory, and the character of the fluid evacuated by the nipple on pressure over the breast was not always a trustworthy guide as to the nature of the affection.

Mr. Bryant, speaking of adeno-sarcoma, said that these growths occurred in younger women than those who were the subjects of cancer. Nearly all the cases of cysts, he said, had been brought to him by medical men as malignant growths, and for this reason he had found it politic to advise an explanatory incision rather than tapping. He was quite con-

vinced that it was false to assert that the majority of cysts of the breast in middle-aged women were associated with cancer or likely to become so, and it was wrong to lead these patients to believe that such breasts would soon become the seat of cancer. Cases of involution cysts in women who were middle-aged, or prematurely so, should be carefully watched. The character of the fluid evacuated from a cyst was certainly of value in many cases as an aid to diagnosis. The author's rule had been to treat simple serous cysts by plugging; in other cases of cyst, especially when associated with intracystic growth, he had dissected out; where the cyst had been multiple he had removed

the lobe, or the whole gland. He had seen but one dermoid cyst of the breast, but had met with many sebaceous cysts. A simple cyst, he said, if it gave rise to no trouble, might be left alone; no treatment was of use to cause absorption. He had seen no good result from tapping; on the contrary, harm had followed, although, being of a septic nature, this might probably be avoided at the present time. The scar which resulted from exploration was usually insignificant, and where the diagnosis was in doubt between cyst and cancer, he said, the patient would readily submit to incision.—*N. Y. Medical Journal*.—

BOOK REVIEWS.

(All Exchanges and Books for Review should be sent to Dr. C. G. CUMSTON, 826 Beacon St., Boston.)

TRANSACTIONS OF THE NEW YORK STATE MEDICAL ASSOCIATION.
 Edited by E. D. Ferguson, M.D.
 Vol. 12, 1895.

The twelfth volume of this distinguished body's transactions is, as usual, well worth reading. To give a list of the thirty or more papers with the discussions would be too long. Suffice it to say that there is nothing but interesting matter, the perusal of which will be of much profit to the reader.

TWENTIETH CENTURY PRACTICE OF MEDICINE. Vol. V., New York, 1896. Wm. Wood & Co., Publishers.

The fifth volume of this excellent work treats the diseases of the skin

and is up to the standard of the previous ones.

The list of contributors is as follows: Charles W. Allen, John T. Bowen, L. Brocq, L. Duncan Bulkley, H. Radcliff Crocker, J. Nevins Hyde, M. Kaposi, H. Leloin, D. W. Montgomery, A. Van Harlingen, and H. H. Whitehouse.

MANUAL OF OBSTETRIC ACCIDENTS, EMERGENCIES AND OPERATIONS.
 By L. C. BOISLINIERE, M.D. Philadelphia, 1896. W. B. Saunders, Publisher. Price \$2.00 net.

The much regretted author of this little book has given to the busy physician one of the best guides to the management of abnormal obstetric cases that we have seen.

The book is written clearly and no

unnecessary matter has found its way into the pages. The illustrations are good and, we think, well selected.

It is nicely printed and bound and can be most highly recommended.

STUDIES OF CHILDHOOD: By JAMES SULLY, M.A., LL.D., Professor of Philosophy of Mind and Logic, University College, London. Author of "Outlines of Psychology," "The Human Mind," etc. 8 vo. Cloth, \$2.50. D. Appleton & Co., Publishers, 1896.

Every thoughtful physician, who has much to do with children, must become interested in the development of their mental capacities and realize the important bearing it may have in the diagnosis and treatment of many forms of disease. Prof. Sully bears witness to this when he asserts that "the pioneers who struck out in this new line of experimental research were medical men." But while we have the interest and the scientific training, most of us have not the time for the needed collection of facts

and careful study of them. Hence this handy little volume is of special value. Some of the chapters have already been published in the *Fortnightly Review* and the *Popular Science Monthly*.

The style is very simple, the thoughts new and striking, the logic clear and convincing. A great abundance of illustrations not only makes the reading matter attractive but furnishes emulative proof of the truth of the points made.

The dawn of reason, the beginnings of thought, the gradual development of the ability to give expression to these thoughts in speech and in drawings, are each fully considered. Childish fears, which so often effect their relations to the physician, who must sometimes cause pain and who frequently gives unpleasant directions, are analyzed in detail and palliations suggested.

With the awakening of the moral faculties we are perhaps not so closely concerned as with the mental, yet the chapters which treat of this cannot fail to attract and instruct.

ANNALS

—OF—

GYNÆCOLOGY AND PÆDIATRY.

DEPARTMENT OF PÆDIATRY.

ORIGINAL COMMUNICATIONS.

A Case of Secondary Anæmia in an Infant of Eleven Months.

JOHN LOVETT MORSE, A.M., M.D.,

Physician to Out-Patients at the Boston City Hospital and at the West End Nursery and Infants' Hospital.

Annie C., eleven months old, entered the Infants' Hospital July 8, 1895. She was healthy at birth, but was weaned when two days old and put on Imperial Granum. This was continued up to eight months, when she was given condensed milk. She is said to have done well until she was seven months old, when she began to lose in weight, strength and color. When she was about nine months old her mother noticed that her face was swollen for twenty-four hours. A month later both hands and face were swollen for two days. This did not occur again, however, until the day before entrance, when the face, hands and feet began to swell. The bowels are said to have been regular, the dejections normal in character and the appetite good.

Physical Examination.

Poorly developed and nourished. Cry and movements feeble. Very marked pallor. No cyanosis. No sub-cutaneous hæmorrhages. Eyelids, hands and feet markedly cedematous. Forehead slightly prominent. Anterior fontanelle widely open and level. No teeth. Gums normal. Very slight rosary. Heart normal. Pulse 130. Respiration quiet—40. Lungs negative except for an occasion moist râle in back. Abdomen soft. Liver and spleen normal in size. No enlargement of epiphyses of wrists and ankles. No scars. Glands of neck, axillæ and groins slightly enlarged.

Urine—Pale. Acid. No albumen.

Blood—Hæmoglobin 57 per cent.

Red Corpuscles	5,456,000.
White Corpuscles	11,000.
Small Mononuclear	36 per cent.
Large Mononuclear	7 per cent.
Polynuclear Neutrophiles	56 per cent.
Eosinophiles	1 per cent.

Numerous macrocytes and microcytes. Very little poikilocytosis. No nucleated red cells.

The child was put on a milk containing fat, 4.00; sugar, 7.00; albumenoids, 1.50; alkalinity, 5 per cent. She was also given two drops of the tincture of the chloride of iron three times a day. The œdema disappeared in a few days and the general condition was considerably improved at the time of discharge, July 15. During her stay in the hospital the temperature remained normal; she took her food well, did not vomit and had normal dejections. She was last seen August 5, when she was still doing well.

We are justified, I think, in making the diagnosis of malnutrition and early rachitis in this case. The anæmia, however, is the most interesting condition and the source of the most striking symptoms. The blood shows a normal number of red corpuscles, but only about half the normal amount of hæmoglobin, while in number and relative proportions

the white corpuscles are normal for a child of this age. That is, we have the condition which in adults is commonly considered to be typical of chlorosis. In this case, however, the malnutrition and rachitis are amply sufficient to cause an anæmia, and we have no need to consider it as the primary condition. Moreover, in the secondary anæmias of children, we do not find the same proportionate diminution in the percentage of erythrocytes and of hæmoglobin that we do in adults, the fall in hæmoglobin in them being relatively much the greater. This is shown in the case of a child of fifteen months with tubercular peritonitis which I recently saw in the out-patient department of the City Hospital.

Blood.—Hæmoglobin	45 per cent.
Red Corpuscles	5,640,000.
White Corpuscles	18,000.
Small Mononuclear	42 per cent.
Large Mononuclear	6 per cent.
Polynuclear Neutrophiles	48 per cent.
Eosinophiles	4 per cent.

In this case we have even a greater relative diminution in the hæmoglobin than in the first. We are thus justified, I think, in considering the blood-condition that of secondary anæmia rather than that of chlorosis.

An Unusual Case of Pneumococcus Infection.

JOHN LOVETT MORSE, A.M., M.D.,

Physician to Out-Patients at the Boston City Hospital and at the West End Nursery and Infants' Hospital.

William W., born Dec. 21, 1893, entered the West End Nursery and Infants' Hospital July 27, 1895. He was perfectly well until Christmas, 1894, when he had some acute disease of the lungs. He never completely recovered from this illness, and the cough, although much diminished, has persisted to the present time. A daily rise of temperature was noted up to the first of April. Distention of the abdomen, which has steadily increased, was noted in the middle of February. The feet began to swell about the first of July.

Physical Examination.

Fairly developed but emaciated. Skin very pale with sallow tint. No cyanosis. Respiration quiet. Slight œdema of eyelids. Head large; anterior fontanelle not quite closed. Ten teeth. Slight rosary. Area of cardiac flatness slightly increased. Sounds of heart normal, but rather weak. Pulmonary resonance everywhere slightly diminished and respiratory murmur rather feeble. Examination of chest otherwise negative. Abdomen much distended and showing signs of considerable free fluid.

Liver flatness begins above at sixth rib and extends to costal border. Splenic dulness obscured by tympany. Temp., 37.6; P., 140; R., 50.

Urine—Pale. Acid. No albumen. Sediment—A few bladder cells and white corpuscles.

Blood—Hæmoglobin	50 per cent.
Red Corpuscles	3,692,000.
White Corpuscles	10,000.

Lymphocytes	21 per cent.
Large Mononuclear	3 per cent.
Polynuclear Neutrophiles	74 per cent.
Eosinophiles	2 per cent.

On July 28, a trocar was introduced, under aseptic precautions, into the abdomen about an inch below the umbilicus and 300 c. c. of fluid removed. This fluid was clear, greenish-yellow in color, and deposited a considerable amount of white sediment. It was alkaline, of a specific gravity of 1.015, and contained 2 per cent. of albumen by the nitric acid test. The sediment was composed of leucocytes with an occasional swollen red corpuscle. A culture made at the time of withdrawal was sterile. After tapping, the liver border could be felt two fingers breadth below the

rib margin. The spleen, however, could not be made out.

The next day the temperature rose and the general condition became much worse. Death occurred suddenly in collapse on July 30.

Autopsy.—Five hours after death. Body still warm. Rigor mortis in jaw only. No cyanosis of dependent portions.

Head.—Not opened.

Thorax.—The pericardium contained about 10 c. c. of a thick purulent fluid. The parietal layer was covered with a layer of a newly organized tissue very rich in blood vessels and about 3 mm. in thickness. Over this there was a layer of fibrin varying from 3 to 5 mm. in thickness. The visceral layer was covered with a layer of similar tissue about 2 mm. in thickness. Above this there was in places a layer of fibrin 1 cm. in thickness. The two layers were adherent in their upper thirds but below showed the typical bread and butter appearance.

The heart was neither dilated nor hypertrophied. The cavities and valves were normal.

The pleural surfaces on both sides were everywhere adherent even to the diaphragm. The lobes were also adherent to each other. The lungs were normal except for a moderate increase in density.

Abdomen.—The peritoneal cavity contained about 200 c. c. of turbid, greenish fluid. The peritoneum was considerably thickened over the diaphragm and kidneys, while in the pelvis, and over the lower surface of the

stomach, it was moderately injected. There was considerable lymph in the pelvis. Cover slips from the peritoneal surfaces showed pneumococci and the bacillus coli communis.

The mesenteric and retro-peritoneal glands were enlarged.

These on section showed merely simple hyperplasia.

Liver.—Normal in size but somewhat increased in density.

Spleen.—Slightly increased in size, but otherwise normal.

Kidney.—Macroscopically and microscopically normal.

Cultures.—Pericardium. — Very numerous colonies of pneumococci.

Spleen.—A moderate number of colonies of pneumococci and cocci.

Liver.—A very few colonies of pneumococci.

Kidney.—A very few colonies of pneumococci.

Lung.—A very few colonies of pneumococci.

Anatomical Diagnosis.—Chronic adhesive fibrinous pleurisy.

Sub-acute fibrino-purulent pericarditis.

Acute fibrinous peritonitis.

Chronic hyperplasia of retro-peritoneal and mesenteric glands.

Chronic passive congestion of lungs, liver and spleen.

We are justified by the history and autopsy, I think, in assuming the following sequence of events — pneumonia, pleurisy, pericarditis, passive congestion, peritonitis. The most interesting points in the case are the long persistence of virulent pneumococci in the organism as shown by the development of an acute pneu-

mococcus peritonitis as the result of the lesion produced by the trocar and the disproportion between the

physical signs and the pathological conditions in the thorax.

Antitoxine as a Prophylactic in the Gwynne Home for Children.

EDWARD L. TWOMBLY, M.D.,

*Visiting Physician to Boston Dispensary; Gwynne Home for Children; Surgeon to
O. P. D. Saint Elizabeth's Hospital, Department
Diseases of Women.*

This home is divided into three departments. (1.) The first for babies under two years, taken for adoption. (2.) The two-year-old Nursery. (3.) The Kindergarten for children between the ages of four and fourteen. These are taken into the Home temporarily for a month or more, thus relieving poor parents who are sick or away at work all day from the added care and anxiety about their children, until they can find a way to have their children at home.

Of necessity, therefore, considerable risk must be taken in admitting children apparently well who may come down with any disease after a short time, in spite of vigilant care and questionings to exclude such.

It is not to be wondered at that an outbreak of diphtheria started in this department on Sept. 12, 1895, but the curious fact was that a little girl of five years, who had been in the Home eight months, was the first patient. The culture-test showed the true bacilli of diphtheria, and she was

at once isolated and later placed in the hospital. There had been no admittances to this department for four or five days previously. No unsanitary condition could be found in the Home to account for its appearance.

Four days afterwards, Sept. 16, occurred the second case in a girl of six years, with a dirty patch of membrane appearing on the right tonsil. All the children's throats were inspected twice daily, and each one had a different spoon (for a tongue-depressor) which was afterwards disinfected and boiled. Sept. 17th occurred the third case, in the morning, in a boy of ten years, and a fourth case in the afternoon, with the membrane just forming over both tonsils.

These cases were ushered in by slight chilliness, vomiting, or malaise, with fever between 100° to 102°.

In spite of disinfection with corrosive sublimate and the isolation of children whose throats gave rise to any suspicion of the disease, it was seen that the disease was rapidly

spreading through the department in which it had started, and so it was determined to inoculate all the remaining children with antitoxine, and stamp out the disease if possible.

Antitoxine was kindly furnished by Prof. Ernst of the Harvard Medical School, and the remaining fourteen children were injected with it on the afternoon of Sept. 18th. No new cases had appeared on that morning. The antitoxine was of the strength of 10 c. c. for the average dose for a child of five years.

As a prophylactic, less was given:

Children from four to seven years received 5 c. c.; children from eight to twelve years received 8 c. c.

All the injections were made in the right thigh on its outer side, the skin having been washed with soap and water and ether, which cleansed as well as rendered the skin less sensitive to the puncture. Antiseptic precautions were observed in handling the needles, and Koch's syringe was the one used.

The younger the child, the less disturbance it made about receiving the injection. It was rather difficult in certain cases to force the fluid into the tissues, and the bulb had to be filled many times with air in order to exert enough pressure. I should prefer, in similar cases, to use the glass piston syringe, which can be readily cleansed, and does not admit air behind the fluid.

The results were highly satisfactory, with one exception, no further cases occurred, and the local and general irritations following the injections were not a matter of anxiety either to

the children or to those who had charge of them.

The one case, wherethe disease appeared within twelve hours after the injection, was that of a strong, healthy girl of ten years, who experienced no discomfort, with the membrane on both tonsils, and who made an uninterrupted recovery. In my opinion the disease, already incubated, although not showing itself until a short time after the injection, was greatly modified by the use of antitoxine.

It has been thought that urticarial eruptions are exceptions rather than the rule, but all my investigations have led me to believe in the reverse of that statement. I was amazed to see how comparatively comfortable and unconcerned the children appeared to be, even where the urticaria was general.

It was not accompanied by elevation of temperature. The local urticarias (by which are meant eruptions of that nature appearing around and near the point of puncture on the thigh) appeared from the sixth to the eighth day, while the general urticaria (over the whole body and face, often-times simulating an attack of measles) appeared a little latter—from the eighth to the tenth day.

The distribution of the cases with their sequelæ were as follows:

Age.	Male.	Urticaria.	Other Disturbances.
4	1		{ Passed large amount of urine thro' night.
5	1		
6	1		
7	1	Local.	
8	1	General.	
9			
10	1	General.	{ Threatening abscess aborted. Diarrhœa.
11			
12			
Totals,	5	3	

Age.	Female.	Urticaria.	Other Disturbances.
4	2	Local (1).	{ Trembling through night; not nervous,
5	1	General.	
6	1	Local.	{ Prostration and temp. for 2 days.
7			
8			
9	1	General.	
10	1	General.	
11	1	General.	
13	1	Local.	
Totals,	9	7	

The trembling in case of the girl of four years came on during the night and lasted at intervals through it. It did not appear to have been caused by nervousness.

The girl of seven years, where prostration was so marked and accompanied by elevation of temperature, was in a very poorly-nourished, anæmic condition, but she suffered no pain after the injection, had no urticaria, or any signs of collapse. In two days she was about the school-room again. The boy of ten with the threatening abscess at the point of puncture was the *fifth* patient to re-

ceive the antitoxine. A poultice caused its disappearance in thirty-six hours.

While these are only a few cases in number, the results may fairly show the value of antitoxine as a prophylactic measure, and I trust may help to swell the number of good results obtained by other observers.

For we have a beginning epidemic in a school-room of children who play, eat, and sleep together (i. e. the girls sleep in one large room, the boys, in another) and who use the same books in common, giving the best field for spreading the disease. Cases had begun to appear each day, but ceased immediately after the antitoxine was used, and one injection, with its protective power for thirty days, proved sufficient to do it.

406 Massachusetts ave.

A Case of Ozoena.

REPORTED BY DR. THOMAS AMORY DE BLOIS.

Physician to Throat Department, Boston City Hospital.

Dr. Thomas Amory De Blois reported at the Boston City Hospital Medical Society, in April, a case of ozoena in a woman aged 27, from whose nose he removed a periwinkle shell. Careful questioning elicited the information that 18 years ago, when a child, playing on the sea-shore in Ireland, she had put the shell in her nose. It had become

firmly imbedded and caused her no special trouble except for the foul discharge which has persisted for many years, although there was marked deformity of the face, from the bones being spread apart on that side. The shell is preserved in the Warren Museum of Harvard Medical School. It measures 1-2x5-16 inches in diameter.

Dr. De Blois also stated that the introduction of foreign bodies into the ears and noses by children was exceedingly common; the principal object so used were grains of corn, beans, peas, and shoe buttons. They were frequently retained for many months, and sometimes years; but he had never known a case where the body remained so long inside as the shell mentioned above. A purulent discharge from the nose of a child, with inability to breathe through that nostril, should at once excite suspicion, that there was either nasal diphtheria or a foreign body in the nose. The differentiation could be easily made with a probe (the presence of necrosed bone in the noses of children being very rare).

It was not only in children that one finds foreign bodies in the nose, for there were two cases mentioned, one of a young woman of 19 and also one of 23 years of age, in which in one case a plug of wood and in the other a pledget of paper rolled up tightly, had been introduced three or four months previously.

The diagnosis of a foreign body having been made, the efforts for its removal should be made with the greatest caution, particularly when the child was not etherized; great

care should be taken not to alarm the little patient, for much depended on the steadiness of the child's head. If the object were a shoe button, and the shank happened to present anteriorly, the very best thing to do was to get a fine wire hairpin, turn a small hook in the end (with the handle of your knife or a barrel key) and then very gently hook it into the shank and it would come away without much violence or hæmorrhage.

Should, however, the shank be in an inaccessible position, you must have recourse to forceps, and by all means use fine "mouse-tooth" forceps. If they are not mouse-tooth, and you grasp a hard convex substance, it will shoot away from between the jaws with the initial velocity of a catapult and lodge far up in the nose. Beans and peas trouble you by the outer coat peeling off when you think you have firmly grasped it.

Sometimes, when the position of the body is very inaccessible with forceps, it may be dislodged with an injection through the post nasal space, with a syringe.

After a body has remained in the nose more than a month there is always hæmorrhage.

REVIEW OF PÆDIATRY.

"PASTEURIZED VS. STERILIZED MILK." By ALBERT R. LEEDS, Ph.D.

In an interesting article under the above caption in *The Dietetic and Hygienic Gazette*, the author calls attention to the increase in this form of business and the need of careful sanitary precautions. His experience is that thirty per cent. of milk called sterilized is not sterile. In as much as almost all the so-called sterilized milk is used within thirty-six hours, he believes that the apparatus used by most such dealers is sufficient. "About seventy-five minutes is requisite to raise the temperature of the flasks to 160° F., at which temperature they are maintained for one-half hour and then cooled to 50° as rapidly as they can be with safety.

All the ordinary pathogenic bacteria are destroyed, and others which remain do not develop at common temperatures to such an extent as to interfere with keeping for 48 or 72 hours longer than the same milk would keep sterile in a non-pasteurized condition. Milk thus pasteurized has very little of the taste of boiled milk, or of milk which has been truly sterilized at temperatures considerably above the boiling point. And it exhibits a peculiarity in the way in which the solids are brought together by the process of heating. In milk sterilized about 212° F. there is a tendency of the separated fat to gather at the top in a semi-boiling, cheesy mass, and for some of the proteids to settle out as a white precipitate at the bottom. This tendency is less marked with pasteurized milk,

the separated masses of fat and proteids floating about in even a more diffused condition. Common sweet milk can be readily filtered through this ordinary filter paper. But in our sample of commercial sterilized milk which I examined, I found that out of a total of 13.5 per cent. of milk solids, 3.79 per cent. was held behind by the filter. A similar sample of commercial pasteurized milk, but containing 13.31 per cent. of milk solids, left in the filter 4.91 per cent.

The best flasks for the purpose are those of Schier. They are cylinders tapering into a cone and with the rather large mouth closed by a flat rubber disk setting down into a conical seat. After the expulsion of air and steam, the atmospheric pressure forces the disk very firmly into its seat, and the simplicity of the contrivance permits every part to be thoroughly washed and sterilized. As retailed in such flasks, sterilized milk costs four cents for a half pint. Viewed from an everyday practical standpoint, the result of a general consideration and trial on the part of the medical fraternity, and also of the general public, has been a decision in favor of pasteurized vs. sterilized milk."

RULES FOR THE PRACTICE OF DEEP BREATHING.

(1) Stand erect, the feet separated, the right slightly in advance. (2) Shoulders and head in natural position. (3) Hands lying lightly on abdomen, the fingers pointing to umbilicus. Compliance with this rule

enables the child to be sure she is using the abdominal as well as pectoral muscles in respiration. (4) Empty the lungs of air, then close the mouth. (5) Inhale slowly through the nostrils, using abdominal as well as chest muscles. The lungs thus receive the utmost possible amount of pure oxygen, and muscles have exercise. (6) Hold the breath as long as possible, and meanwhile use the ordinary calisthenic exercises. (7) Never exercise except with the chest well expanded with air. (8) Exhale slowly, enunciating the vowel sounds as the air passes the lips.

The above from the "Annals of Hygiene" may be of service to the busy practitioner who sees continually the bad effects of shallow, superficial breathing, especially among school children.

TYPHOID FEVER IN CHILDREN.

In a very careful study of "Typhoid Fever in Childhood, with an analysis of 284 cases," read before the Suffolk District Medical Society, and published in the Boston Medical Surgical Journal of Feb. 27, 1896, Dr. John Lovett Morse comes to the following conclusions:

"Typhoid is a common disease in childhood, but rare under two years. It occurs about as frequently in children between five and ten as in those between ten and fifteen. The mortality in cases under fifteen is about six per cent., or half that in adults. The rate of mortality increases directly with the age. The course is shorter and less severe than in adults; this, as well as the low mortality, being due to the slight intensity of the intestinal lesions. The severity increases directly with the age. The onset is acute in about one-third of the cases in the second five years, and about one-fifth of those

in the third five years. Nose bleed occurs in about 50 per cent. of all cases, and is often severe.

The average duration of the fever is a little less than three weeks, being somewhat shorter in younger than in older children. The proportion of cases in which the duration is not more than ten days is twice as great in children under ten as in those over ten. The temperature curve is less typical than in adults. The remittant second stage is absent in more than 50 per cent. of the cases under ten, and in 40 per cent. of those between ten and fifteen. Relapses are nearly as frequent in children as in adults and follow the same course. The tongue is rarely as dry as in adults. Vomiting is a common initial symptom, and is not very infrequent during the course of the disease. It is not an unfavorable symptom. Constipation is more common than diarrhoea, especially in younger children. Distention is present in 50 to 70 per cent. of all cases and is more common in younger children. It is not infrequently extreme. Tenderness is present in about half the cases, but is rarely very marked. Haemorrhage is very rare under ten years, and much less common above that age than in adult life. It is fatal in about half the cases. Perforation is extremely uncommon. Rose-spots are present in about 60 to 70 per cent. of all cases. The spleen can be demonstrated clinically to be enlarged in about 80 to 90 per cent. of all cases. This enlargement is usually moderate, but may be extreme more commonly in young children. Clinical bronchitis occurs in about 40 per cent. of all cases. In some cases it may mask the abdominal symptoms, especially in younger children. Other pulmonary complications are rare. Headache is complained of in about 75 per cent. of all cases, but is rarely

severe. Marked nervous symptoms occur in at least 25 per cent., but are generally common at all ages. The condition is one of stupor in from 15 to 25 per cent., and of delirium in the remainder. The delirium is more commonly active. Crying out at night is common, especially in young children. Meningial symptoms are not infrequent and are more common in young subjects. Neuritis occurs probably more often than is supposed. Albuminuria is common, and occurs with equal frequency at all ages. Serious renal complications are rare, especially in young children."

MELENA NEONATORUM.

A bibliography of 195 writers would seem to well attest the value and authority of an article on "Melæna Neonatorum," by W. Milton Lewis, M.D., read before the Medical and Surgical Faculty of Maryland, at its annual meeting in 1895, and published in the New York Medical Journal of Feb. 1, 1896.

Two cases are carefully reported, and then, turning from what he considers of interest chiefly because the condition is so rare, the writer proceeds to a very thoughtful and interesting consideration of the ætiology and pathology of this strange disease.

In the study of the 183 cases which he found reported in the library of the Surgeon-General's Office in Washington, he found a great multiplicity of causes assigned. Of these causes, Dr. Lewis finds the most common to be compression of the abdominal walls due to prolonged or difficult labors and cerebral hæmorrhage. These two causes have been repeatedly confirmed by autopsy, not alone in infants, but in adults who before death had the symptoms of hæmatemesis and intestinal hæmorrhage. The

were sixty-eight autopsies recorded. digestive tract showed not ulcers, but intense injection.

Heredity seems of but slight importance and hereditary hæmophilia of even less. It has been noted in several cases having hereditary syphilis.

Numerous other theories of the ætiology are stated, but the writer apparently sympathizes with Dr. Osler's statement that "the cause of this disease is enveloped in great obscurity."

The clinical history, diagnosis and prognosis are briefly but clearly delineated. The prognosis he finds very grave, varying from 35 to 75 per cent.

In an analysis of the 185 cases collected from the literature he brings out many interesting facts. Of course in all the cases some of the various details were omitted. The mortality was 68 per cent. Forty cases followed normal labor, twelve abnormal. Twenty-eight were healthy children apparently, and seven were diseased. In thirty-two cases it was the first child, in eighteen the second, and in nine the third. Sixty-five males and sixty-nine females were noted. Seventeen had healthy mothers and fifteen sickly mothers. The fathers of seventeen were healthy, while those of nine were unhealthy.

Melæna began in thirty-one cases before they were one day old, in thirty-four between one and three days of age, and in fourteen over three days old.

The hæmorrhage lasted one day or less in twenty-two cases, one to six days in twenty-four cases, and over six days in eleven cases. One case began in two hours after birth, while another did not appear for four months and a half. One case lasted only three hours, but the longest duration was five months. There

Ulcer of the stomach was found in six cases, of the duodenum in three cases, and once each in ileum, rectum and œsophagus. Twelve times was injection and hyperæmia found in the stomach, the same being found nine times in the duodenum, eleven times in the jejunum and ileum, twelve times in the colon and twice in the rectum. In four cases the stomach was found normal and in five cases the same was found true of the intestines. Six cases showed anæmia of all the mucous membranes, eight of the heart, six of the lungs, nine of the liver, and eight of the spleen, stomach and intestines respectively. Congestion of the heart was found twice, and congestion of lungs, liver and spleen once each. Pneumonia, nephritis, abscess, croup, pulmonary infarction, atelectasis, teleangiectasis, ecchymoses and emphysema were also detected at these autopsies.

Once there was found a hæmorrhage into the abdominal viscera and once the abdominal cavity was found filled with blood from a ruptured spleen. One case had fracture at the base of the skull. Twice the medulla, pores and fourth ventricle were affected by hæmorrhage, and eight times hæmorrhage was found in other parts of the brain. Congestion and hyperæmia occurred in some cases, meningitis in four, and purulent meningitis in two. Engorged sinuses, cerebral œdema, and meningeal anæmia were also found. At three autopsies nothing abnormal could be found, but in none of these was the brain examined.

As to treatment, Dr. Lewis believes in rest, warmth, iced milk given by spoon, with a drug to contract the small blood vessels.

NEPHRITIS OF THE NEWLY-BORN.

In an exceedingly interesting ad-

dress entitled "Nephritis of the Newly-Born," delivered before the Medical Society of the District of Columbia and published in the New York Medical Journal of January 18, 1896, Dr. A. Jacobi arrives at the following conclusions:

"Nephritis is a frequent disease of infancy and childhood, and by no means rare in the newly-born. What was formerly considered mere albuminuria, or a transient form of it, we have been taught by improved methods of investigation, mainly by the use of the centrifuge, to recognize as nephritis. A predisposition to nephritis in the young is caused by the fragility of the blood vessels in the newly born; by the relative imperviousness of the young renal capillaries compared with the large size of the renal arteries; by the feebleness of the young intestinal muscle which proves insufficient to expel toxic contents; but the extensiveness and size of the young intestinal blood vessels and lymphatics and the large size of the villi, all of which favor the absorption of toxins.

From an ætiological point of view, nephritis in the newly-born may be:

1. *Congestive* (from feeble circulation, congenital heart disease, asphyxia or exposure to low temperatures).

2. *Obstructive* (from the physiological rapid decomposition of the blood of the newly born; the formation of hæmatoidin-bilirubin; jaundice; the production of methæmoglobin by chemical poisons, such as potassic chlorate or by excessive heat; or the presence of blood in the uriniferous tubes).

3. *Irritative* (from the presence of uric-acid infarctions or hæmatoidin infarctions, of purpuric or other interstitial hæmorrhages, or of microbes and toxins in the numerous

eruptive and infectious maladies, and in enteritis)."

To the average general practitioner these conclusions will, we fancy, come somewhat as a surprise. The high standing of the writer, however, as a student of the authority on Children's Diseases, together with the careful proof brought forward of each point in the paper, demand attention and consideration in the presence of disease. Dr. Jacobi lays special emphasis upon the advantages in the use of the centrifuge. In nineteen cases out of twenty having "a trace of albumin" he has been able by its help to find in a few minutes blood cells, hyaline casts studded by epithelia or finely or coarsely granulated casts.

Catheterization of a child for the obtaining of a specimen he has found more readily successful than in many adults.

Not alone in scarletina, measles, varioloid, and varicella has he found nephritis an important and often decisive factor, but in vaccinia, acute local diseases of the skin, erysipelas, rheumatism, typhoid fever and in acute and chronic intestinal diseases. In meningitis, pneumonia, and diphtheria, too, is the accompanying nephritis the cause of fatal issue in many a case. Of more general interest possibly because more commonly met with is the connection traced between these nephritides and diarrhœal disorders. The nephritis is sometimes primary, sometimes secondary, and not infrequently the immediate cause of a fatal termination. The elements of successful treatment of this complicated condition consist in restoring and equalizing by warm bathing both the cutaneous and general circulation, in cleansing and disinfecting the intestine and filling the blood vessels and establishing a flow of urine through the uriniferous tubules by means of copious and frequent irriga-

tion of the bowels and in stimulating the heart by judicious doses of strychnine.

All of us are called upon to treat canker of the mouth, and the report of the fatal case of nephritis due to the use on the recommendation of an ignorant midwife of a saturated solution of potassic chlorate will make us very careful in our use of this remedy in young infants.

In the same way we are all interested in the cases reported of nephritis following vaccination, with and without complicating erysipelas, and are encouraged to learn of the favorable outcome.

Dr. Jacobi warns against cold bathing of the newly born, and likewise bathing in too hot water, each of which he has seen cause fatal cases of nephritis.

Nephritis due to minute hæmorrhages dependent upon retarded or impeded circulation, as well as that due to the parenchymatous hæmorrhages of purpura and melæna, are most interestingly illustrated and explained. The well established presence of uric acid and pigmentous infarctions, as well as the many cases of gravel and stone in the very young, gives an opportunity for the enforcement of the need of a plentiful supply of water to the infant. As is known from other writings, and repeated here, Dr. Jacobi believes in a larger dilution of the food of the very young infant. The abundant supply of bilirubin which occurs in every young infant soon after birth, and is the cause of Icterus Neonatorum and many other symptoms, including oftentimes a nephritis, is also best treated by the ingestion of a sufficient quantity of water.

CEREBRAL MENINGITIS.

Dr. David L. Davies reports a

case of cerebral meningitis following influenza. Patient was a girl fourteen years old who had the characteristic symptoms and pains of influenza for several days. She was treated with bicarbonate of potassium and liquor ammoniæ acetatis, and the pains promptly yielded. The temperature remained above 101°, however, in spite of treatment with above remedies, bromide of potassium, salicylate of soda, quinine, aconite, antipyrin and cold sponging. Gradually she became dull and apathetic, speaking at rare intervals. About six weeks after the first visit choreic movements began and she soon became delirious. The next day tonic spasms set in: she became comatose, and in twelve hours died. — *The Lancet*, Feb. 22, 1896, page, 478.

Another case of cerebral meningitis following influenza is reported by Dr. C. Bryan Townshend. Patient was a robust boy seven years old. Had a sharp attack of influenza with an unusually high temperature. He was treated with bicarbonate of potash and carbonate of ammonia in chloroform water, with plenty of liquid nourishment. He improved steadily for three or four days till one evening he suddenly became delirious. At first the delirium was very violent, and force was necessary to keep him in bed. The next day it became low and muttering, and he soon passed into a state of coma and died without regaining consciousness. — *The Lancet*, March 21, 1896, page 764.

Dr. G. R. Baldwin reports for Dr. Edmund Owen a case operated by Dr. Owen of a female infant eleven weeks old, from whom was removed an ovary, fallopian tube and parovarium. The ovary was of blue-black color, full of dark blood and greatly enlarged. The case is of special

interest, because so rare, and because it seems to have a close resemblance to cases of torsion of the spermatic cord reported by the same surgeon. Clinically the patient showed irritability and persistent vomiting lasting three days. A tense, tender tumor appeared in the right labium majus which continued up the inguinal canal as a firm cord-like prolongation. It was irreducible, dull to percussion and devoid of impulse when the child cried. The abdomen was flaccid.

There was a good deal of difference of opinion, as to the condition, among the surgeons of the Hospital for Sick Children where the operation was performed. Dr. Owen himself believing it to be a tense encysted hydrocele in canal of the Nuck. The pedicle was found twisted firmly and was ligated just above the twist and returned to the abdomen. The child made a rapid recovery and was discharged cured in ten days. — *The Lancet*, March 21, 1896, page 765.

INHERITED INCONTINENCE.

Dr. T. K. Monro, Glasgow, reports from notes made at the Royal Infirmary cases of incontinence of urine in a family wherein five girls and one boy are all afflicted. The eldest is eighteen and the youngest five. All are and have been troubled by wetting their clothes by day and their beds by night. All have had "fits" as an additional element in their neurotic condition. The father is nervous and used to wet his bed every night till quite a large boy. Treatment seems to have little effect. So the children sleep on straw beds which are dried every day in the open air, thereby causing great annoyance to themselves and arousing the curiosity of their neighbors. — *The Lancet*, March 14, 1896, page 704.

DANGERS WHICH THREATEN THE
USEFULNESS OF COD-LIVER OIL.
By JNO. T. WINTER, M. D.

From recent observations I am convinced there are dangers which threaten the future usefulness of one of the most valuable remedies in the materia medica.

That cod-liver oil has valuable therapeutic properties has been known for two centuries. For half a century this oil has been carefully studied, and its physiological action and therapeutics placed upon a sound scientific basis. Until recently, thousands of physicians have prescribed cod-liver oil, confident that certain results would follow. Thousands upon thousands of the laity have taken advantage of the teachings of the profession and of the experience of their fellow-men, and incalculable benefit has resulted therefrom.

It is no slight matter to weaken the confidence of the profession in a remedy which has stood the test for at least fifty years. It is equally serious to diminish the faith which the people have in so valuable a remedy. No one can deny that cod-liver oil has given comfort to those who could not be cured, has greatly prolonged the lives of vast numbers, and has restored countless thousands to health.

In the light of all this, is it not trifling with human life to break the faith of both physician and patient in a remedy which has proven itself so valuable, we might say, indispensable? Is the profession soon to lose faith in cod-liver oil as a remedial agent? And is the public about to abandon its use?

Neither physician nor patient will continue the use of a remedy unless the desired results are obtained. Experience has established these results. Cod-liver oil is not prescribed as an experiment. Its physiological action

is no longer watched with an uncertain eye. But suppose these expected results no longer appear, what then? Confidence is impaired, and in looking about for a substitute a hundred worthless remedies are tried, and the most valuable time for successful treatment is lost.

Having for many years been a firm believer in the curative properties of cod-liver oil, I have of late looked with great anxiety on efforts which tend to impair its usefulness. I can see at least three great dangers. Unless these are destroyed, the therapeutic value of cod-liver oil will be an uncertain factor.

The First Danger.—The first danger is the result of a modern theory that a part equals the whole! We all know that cod-liver oil is a most complex body. Its chemical analysis reveals the presence of many constituents. These have been called the alkaloids, or the "active principles" of the oil. They exist in peculiar combination with the fat, and are with difficulty separated from it. It is significant that nearly every original investigator has been able to extract from the oil some additional substance. In fact, even prior to 1888, there had been discovered over fifty elements in this oil. Within the past eight years chemists have been very active in discovering new principles, until at the present time I am not aware of the length of the list.

To break up cod-liver oil into these several ingredients is to change its character altogether. I do not believe it is possible to take any of these constituents from the oil without either impairing or totally destroying the therapeutic properties of the parts taken or of those remaining. There is no doubt but the alkaloids of cod-liver oil are valuable; they are valuable, however, *because of the peculiar combination as it exists in the oil.*

To take all of the oil, or fat, from cod-liver oil, and then claim that the alkaloids are useful as a fat-producing food, is just as reasonable as it would be to administer iodine, bromine, or phosphoric acid to a patient, as a food! Persons can live on cream and on other fatty foods, provided their digestive powers can properly care for so rich a diet. But they could not live on iodine or any of the alkaloids or active principles of cod-liver oil, or on all of them combined. To use only the alkaloids of cod-liver oil is to employ a remedy without value as a fat-producing food. If this be not true, then let us abandon the oil entirely and rely upon other sources for our iodine, bromine, etc.

This new theory of substituting a part for the whole is, to many minds, the greatest danger which threatens the usefulness of cod-liver oil. No matter how ingeniously the alkaloids may be combined with wine or other liquids, the results of the past will not be verified by this substitution, and the profession and laity alike will distrust it. If they were only skeptical regarding these new preparations, the case might be different. But having been taught that cod-liver oil is valuable only for its alkaloids, then the failures are charged against the oil as a whole, instead of against a part.

Even granting, for argument's sake, that all of the good properties of cod-liver oil reside in these so-called alkaloids, the fact remains there is no reason for believing that they would exert the same good office when thus isolated as when they existed in their natural state; just as a mineral water would not do the same amount of good if its various constituents were extracted and administered separately.

It must be laid down as a rule, founded upon scientific study and

verified by scores of years of observation, upon hundreds of thousands of cases, that *the whole oil must be used* if the best therapeutic results are desired.

The Second Danger.—The second danger would be more serious than the first, but fortunately it can never grow to such magnitude. There are only a few manufacturers so unscrupulous as to impose such frauds upon the public to as these which I now refer.

In his "Practical Therapeutics," Hare says: "One of the emulsions widely advertised in the street cars of Philadelphia as 'tasteless' has been shown to contain no oil at all." He adds also that, "Oil devoid of smell is probably devoid of medicinal value, as all the peculiar properties have been purified out of it." Patients invariably object to the odor and taste of raw cod-liver oil, so it is but natural they should be pleased with these "odorless and tasteless" preparations. That these preparations are in use at all is probably due to two reasons: (1) Only a few physicians are aware of the fact they contain no cod-liver oil whatever; and (2) the laity have no reason for doubting that the mixture is other than what it pretends. The physician and patient have every right to expect that a "preparation" of cod-liver oil contains that oil. It is the most cruel kind of deception to thus impose upon those who place all their hope for health on this valuable remedy. As it is not present, so the results are not obtained. Therefore cod-liver oil is put down as of no value whatever in such cases. Even if the deception be discovered, it is generally too late for the oil to accomplish good, at least to its full amount.

The Third Danger.—The third danger is a universal one, and is of

great importance. To understand it a few words of explanation are necessary.

Without doubt the great bulk of cod-liver oil is taken in the form of an emulsion. The reasons for this are evident. A good emulsion has little of the fishy odor and taste, although these are always present. An emulsion is more easily borne by the stomach and is not so liable to cause eructations of gas. This is probably due to the fact that when an oil is emulsified it is, in a measure, digested, for the digestion of an oil is simply breaking it into minute globules. Modern physiology teaches that the oils are not saponified, but emulsified, by the pancreatic juice; this is the case, at least, with those oils which are assimilated. The oil in ordinary emulsions probably requires some further digestion in order to prepare it for absorption; but its emulsification is doubtless a great aid to its digestion. Then again, emulsions are more pleasant to the taste than are the raw oils. Therefore we find the majority of physicians prescribing them, while the laity, undirected by physicians, almost invariably ask for them.

It is an unfortunate fact that there is no fixed standard for cod-liver oil emulsions. We find one pharmacist offering an emulsion of his own manufacture at a certain price, while his competitor just across the way is offering one at a third less. But the former gives thirty per cent. of oil, while the latter may give but ten, yet both preparations are "Emulsions." No physician should prescribe an "Emulsion" of cod-liver oil unless he knows the preparation contains cod-liver oil, and in definite proportions. To prescribe any "Emulsion" or "Preparation" of cod-liver oil simply because it is an emulsion, or preparation, is to express as much

confidence in the curative properties of the label as in the drug.

The third danger, therefore, is one due to unreliability and uncertainty. It is easily overcome by the exercise of ordinary care that only those preparations be ordered which are reliable, and of definite composition.

It is because I believe cod-liver oil to be such a valuable remedy that I call attention to some of the dangers which threaten its future usefulness. But they are dangers which we are abundantly able to remove, and which must indeed depart without effort if we keep clearly in mind the facts upon which cod-liver oil rests its reputation.

THE ERUPTIONS OF VACCINATION AND RE-VACCINATION. By ISADORE DYER.

Vaccinia is a disease *sui generis*, not at all infrequent in the lower animals, particularly the cow, dog, sheep, pig, horse, goat, and monkey (Shoemaker). The history of its discovered similarity to variola, and the application of this discovery in the prophylaxis and prevention of small-pox, is familiar to all of us. In studying the eruptions of vaccination the simplest and best method would be to arrange the eruptions etiologically. Malcolm Morris has done this so well that I can do no better than reproduce his suggestions for the division of vaccination eruptions into groups.

He first of all makes two general subdivisions, into:

1. Eruptions due to pure vaccine inoculation.
2. Eruptions due to mixed inoculation with vaccine, with which an additional virus, or several viruses, has become mixed.

In the first group, he arranges the several eruptions which attend and

follow the local inoculation. I believe that in some instances this grouping can be expanded, and, with this end in view, I propose taking up in detail Morris' subdivisions.

1. Eruptions due to inoculation.

First in this class comes the lesion of vaccination itself. Following the constitutional impression, this lesion begins with itching and formation, to appear as a papule, in size about that of a pin's head. As the local inflammatory process progresses, this lesion expands, fills with fluid, growing more and more distended, until a lesion of bullous character, about as large as the thumb nail, is developed. Around this an areola begins, gradually increasing in breadth to as much as two or three inches. The bulla becomes a pustule: this in time breaks, crusts: the crust falls, and the vaccination is in time marked by a slightly depressed scar, with irregularly defined edges, and, at times, here and there a pit or two in the body of the scar. This is the normal course of vaccination from start to finish. This is, however, not always the rule.

The original lesion of vaccinia may not develop into its completed scar. The lesion may abort at the papule, the vesicle may dry and scale instead of going on to crusting. There may be no pustulation, and consequently there will be no scar—only a pigmented spot to mark the site of the bulla, and that only a temporary marking.

Instead of a simple pitting and scarring, the process may involve some of the adjacent tissue, induce a more pronounced inflammatory process, still close to the normal, resulting in a hyperplasia of the connective tissue element, causing a temporary ulcer with infiltrated, almost indurated, edges, which give the lesion a crateriform appearance. There is no wonder,

then, that as the process is completed, there results a marked keloidal development at the site of vaccination. All that is required is that the process shall go deeply enough into the corium.

As the vaccine virus is at work before the vesicles are developed, acting as a vaso-motor disturbant, producing reflex disturbances, among which temperature, malaise, pain, itching, etc., are numbered, the second division of the first group of vaccination eruptions is manifested.

B. Eruptions following within the first three days before development of vesicles.

(1) In this division, urticaria is perhaps the most common unavoidable complication. It may appear in the small papular, or in the large wheal variety.

(2) Erythema multiforme next in frequency may manifest itself. Here there may appear simply a roseolous eruption, either limited to one region, or it may be diffuse. On this, papules of various sizes may develop. Even discrete vesicles may form with no particular arrangement or distribution.

They may be pemphigoid in size and characteristics.

In this group Crocker defines a "vaccine lichen," corresponding, however, to these varieties of erythema multiforme just described.

When the vesicle has become apparent in the local region, or when the vaccine virus has become more fully impressed upon the general economy, we see another division of this group, viz.:

C. Eruptions following after development of vesicles.

(1) Marked diffuse dermatitis may occur, resembling the roseola of measles or the erythema of scarlatina. Even a purpuric eruption may occur (Morris).

(2) Just here, as a minimum limit, up to the time of pustulation, the generalized vaccinia may occur. In this generalized eruption the lesion of vaccination is reproduced, pursues the same course as the usual vaccine inoculation, and may result in the same kind of scarring. More often the lesion is shorter lived, less severe and more superficial, acting more as the lesions of varicella do.

This finishes the divisions of acute eruptions attending, *unavoidably*, vaccination.

As sequelæ of a normal vaccination, however, there may be eruptions lighted up, as it were, such as eczema, particularly of the papular and pustular type, and of the reflex variety. Chambard reports (class D) a case of psoriasis determined by vaccination—not at all improbable, as psoriasis is now largely referred to neuropathic origin. Finally, the urticaria determined by vaccination may persist in a chronic variety.

In the general group referred to above as that in which the eruptions were due to mixed inoculation, there may be separated two general classes:

1. Where the additional virus is introduced at the time of vaccination; and

2. Where the virus is introduced subsequently into the wound.

Subdividing the first class, we must recognize:

(1) Eruptions due to a local skin disease; and

(2) Eruptions due to constitutional diseases.

In the first subdivision, the condition of more frequent occurrence is impetigo contagiosa. Of such frequent occurrence, in fact, is this complication, that it often misleads, and for a time excites a suspicion of vari-

ola. The finding of the staphylococcus pyogenes aureus and citreus in vaccine lymph readily accounts for the production and dissemination of impetigo, which is directly due to and spreads after the local contact of the staphylococcus pyogenes aureus.

Incident with the infection of the vaccine lesion at the time of inoculation, an abnormal erythema may develop, spreading over the whole arm, or even to other regions, due to septic origin.

In the second subdivision are included such constitutional diseases as may be inoculated at the time of vaccination. Syphilis takes the first place in rank, and numerous cases of vaccinal syphilis are in evidence. Fournier has contributed an exhaustive work on this subject.

While the question of contagiousness of leprosy is still in abeyance, the quotation of leprosy as one of the constitutional diseases which may be transmitted by vaccination will, perhaps, be received with a question mark. Nevertheless, popular resistance to community laws regulating vaccination is still strong in those leprous countries where it is still the custom to vaccinate from person to person. Beaven Rake, of Trinidad, reported fully on this subject only last year, arguing that vaccination was a contributing cause in the spread of leprosy. Bacilli lepræ have been found (Arming, Journ. Lepr. Inves. Com. No. 2, February, 1891, p. 131) in the vaccine lymph taken from a leper. On the other hand, however, the infrequency of leprosy is incomparable to the frequency of vaccination, and even in leprous centres the existence of leprosy would or should make the vaccinator more careful in selecting his vaccinators.

International Congress of Gynecology and Obstetrics.

President Vuillet, of the International Congress of Gynecology and Obstetrics, died in the south of France, after a short illness.

This unfortunate occurrence will not interrupt the organization of the coming meeting.

Pending the election of the new president by the permanent committee, the management of the Congress is being supervised by the vice presidents, A. Reverdin and Jentzer, of Geneva.

The Congress will convene in Geneva on Tuesday morning, Sept. 1, 1896, at the University Hall, and will be under the patronage of the Swiss Federal Council. Its first session will be opened by an address delivered by the President of Switzerland, and another by the Minister of Public Instruction of the Canton of Geneva. All arrangements will be well under way, and the correspondence indicates a large attendance. The American Government has been officially requested by that of Switzerland to appoint a federal delegation to represent this country.

The national secretaries of the different countries are as follows:

For France, M. Doleris, of Paris.

For Germany, Döderlein, of Leipzig.

For England, Leith Napier, of London.

For America, Henrotin, of Chicago.

For Austria and Hungary, Vavra, of Prague.

For Russia, Fischer, of St. Petersburg.

For Italy, La Torre, of Rome.

For Belgium, Popelin, of Brussels.

For Switzerland, Muret, of Lausanne.

For Holland, Nyhoff, of Amsterdam.

For Sweden, Westermarck, of Stockholm.

For Norway, Christie, of Bergen.

For Spain, Planellas, of Valencia.

For Finland, Torngren, of Helsingfors.

For Turkey, Chahbazian, of Constantinople.

For Portugal, Silva Jones, of Lisbon.

Further details will be published in our next issue.

Members of the Congress desirous of taking part in the discussions of the questions in the official programme are requested to inform the secretary before the fifth day of July, 1896, stating definitely the questions they desire to discuss.

Members desiring to present to the Congress original communications must forward the complete explanatory title of the same to the secretary before June 1, 1896.

Secretaries of National Gynecological and Obstetrical Organizations are requested to forward at the earliest possible date their lists of delegates.

Members intending to attend the Congress should secure steamer berths at once, particularly for the return passage, which is most difficult to obtain.

All information at hand will be cheerfully furnished by the American Secretary.

FERNANDA HENRETIN,

353 Lasalle Avenue,

Chicago, Illinois.

The Second Pan American Medical Congress.

The Committee on organization of the Second Pan-American Medical Congress has elected Dr. Manuel Carmona y Valle, President, Dr. Rafael Lavista, Vice President, and Dr. Eduardo Liceaga, Secretary, and has announced November 16, 17, 18, 19, 1896, as the date of the meeting to be held in the City of Mexico.

The most cordial invitation is extended to the medical profession of the United States to attend and participate in the meeting.

Titles of papers to be read should be sent at the earliest practicable date to Dr. Eduardo Liceaga, Calle de San Andres No. 4, Ciudad de Mexico D. F. Republica Mexicana.

The date selected is in the midst of the delightful midwinter season when the climate of Mexico is the most attractive to the northern visitor.

The occasion should stimulate the medical profession of the United States to a most cordial reciprocation of the generous patronage accorded the Washington meeting of the Congress by our Mexican confreres.

It should be remembered that the United States is the largest, and in many regards the most important, of the American countries, and that as a consequence more is expected of it

than of any other Occidental nation. In no particular is this more true than in the maintenance of position in the realm of scientific medicine on the western hemisphere. It is, therefore, simply essential that in this Congress—the most important of all medical congresses, in its exclusive, yet broad, American significance—the best thought and the best work of the American profession shall be conspicuous in the proceedings.

The zeal and enthusiasm of the Mexican profession and the active interest of the Mexican Government are co-operating to make the second Pan-American Medical Congress attractive, important and memorable.

Those who contemplate attending should send their names and addresses at as early a date as possible to Dr. Charles A. L. Reed, St. Leger Place, Cincinnati, that the committee in Mexico may be advised of the probable attendance.

WILLIAM PEPPER,

ex-officio President.

A. M. OWEN,

A. VANDER VEER,

CHARLES A. L. REED,

ex-officio Secretary.

*International Executive Committee for
the United States.*

ANNALS

—OF—

GYNÆCOLOGY AND PÆDIATRY.

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ORIGINAL COMMUNICATIONS.

On Cardiac Disease During Pregnancy.

MAURICE MAZIER, M.D.,

Ex-interne of the Hospitals of Caen; Ex-interne of Saint-Lazare, etc.

What is the prognosis of pregnancy and labor in a patient with heart disease? and can she nurse without danger? Writers are very divided in opinion on this question. Some think that a woman having a cardiac lesion, and principally a mitral lesion, cannot become pregnant without running the greatest risks, and that this patient should give up marrying, if she is a young girl; or give up becoming a mother, if she is married; and not nurse, if she is a mother.

Others think that in many cases, women presenting characteristic cardiac affections may marry, have children, and nurse them without running any great risks in the majority of cases. They consider imposing the celibate or sterile condition often a useless cruelty.

Without wishing to take a positive part in such an important question, we have thought it would be worth while publishing a few cases in which women with manifest cardiac lesions have been able to go through one or several pregnancies and nurse their children without any trouble.

We think that we can conclude after the cases that we here report that at the present time the physician is unable to say to a woman after he has examined her heart and found it diseased, that she can have one or several pregnancies without trouble, or that she may expose herself to dangerous accidents if she becomes a mother.

The cases here reported were observed at the Clinique Baudelocque at Paris.

CASE I.—A. Z., aged twenty-three, borne in Venice. Entered the hospital October 4, 1893. Hereditary antecedents *nil*. Menstruated at thirteen and has continued regular. She had peritonitis at sixteen years of age, and articular rheumatism at seventeen.

In 1889 she had an easy labor at term. Vertex presentation. The child, a girl, is still alive and well.

Present pregnancy. Her last menstruation occurred in February, 1893. The pregnancy went on without trouble: no albumen; no œdema. Varicose veins on the lower extremities. A systolic murmur was heard at the apex of the heart. Vertex presentation.

Labor began at two in the morning on January 4, 1894. Dilatation at this time was the size of a quarter of a dollar. The position was O. I. L. A. Dilatation was complete at 5 minutes past 3 in the morning. The membranes were artificially ruptured at 10 minutes past 3. The head came down in occiput posterior, and the foetus was expelled at 20 minutes past 3, January 5, 1894. The total duration of labor was 2 hours and 20 minutes.

The placenta was extracted at 4 o'clock in the morning. The child lived and weighed 3 kilograms, 570 grams; the placenta weighed 570 grams. This woman nursed her child and left the hospital on January 17, 1894, at which time her condition was excellent, as was that of the child.

CASE II.—M. P., age thirty-eight.

Her mother died asthmatic. Father died of smallpox.

The patient had croup at seven years old and acute articular rheumatism at twenty-eight.

Former pregnancies. A miscarriage at four months, child living.

2d. Spontaneous labor at term. Vertex presentation. Child in good health and still alive.

3d. Miscarriage at the third month.

4th. Miscarriage at four months.

5th. Spontaneous labor at eight months. The child, a boy, died eight hours afterwards. The last two children were by another father.

6th. Normal labor at this clinic. Last menses at the end of April.

When this woman entered the service, the pregnancy was at term. During this time she had been perfectly well; and there was no albumen in the urine.

A systolic murmur was heard at the apex. Mitral insufficiency. No œdema or varicose veins.

Vertex presentation. Disengagement was naturally accomplished. The position L. T. The dilatation was complete at 10 minutes past 1 on the morning of January 16th. Premature rupture of the membranes at about 2 o'clock in the morning of January 15th. The head became disengaged in O. P.

Spontaneous expulsion of the child at quarter past 1 o'clock in the morning of January 16, 1894. Duration of the period of expulsion, 5 minutes. Total duration of labor, 3 hours and 15 minutes. The placenta was removed by simple ex-

traction at a quarter of 2. The child, a boy, was alive and weighed 2 kilograms, 420 grams. The placenta weighed 370 grams. The mother and child left on January 24, in perfect health.

CASE III.—M. S., aged twenty-eight. Entered the labor room at quarter past 10 o'clock on January 23, 1894.

Her father died at the age of forty-five of cancer; her mother died at forty, from pneumonia.

The patient walked at fourteen months and has always been able to walk well since. She menstruated at thirteen and has always been regular. She had measles between the ages of five and ten. She has had several attacks of articular rheumatism, the first of which she had at fifteen: and the last, three months before she came to the hospital. For the last two months the patient has complained of a sharp pain in the left side.

Her labors have been as follows: In 1878, she had a spontaneous labor at term, resulting in a living boy, who was brought up on the breast by his mother, and who died at the age of four from meningitis. In 1889 she had a spontaneous labor at term, resulting in a living boy who was also suckled by his mother. The child died at the age of one month, from erysipelas. In 1889, spontaneous labor at term with a living boy. He was nursed for two months by his mother; afterwards was brought up on a bottle. This child is alive and well. All these children had the same father.

Present pregnancy. The last menstruation occurred from the first to the second of May, 1893. (?) The pregnancy has been without accidents. Occasionally the patient complained of headache and some times weak spells: but there was no albumen in the urine. Examination of the heart revealed a systolic murmur at the apex with propagation towards the axilla. Oedema of the lower limbs, especially of the right one. Some small varicose veins of the vulva were noted. Vertex presentation. Position L. A.

Labor began at 8 o'clock in the evening of January 23d, and she came into the labor room at quarter past 10. Dilatation began at 5 minutes past 2 in the morning of January 24, and was complete at half-past 6 in the morning, making the duration of the dilatation 4 hours and a half. The child was expelled at 20 minutes of 7, the period of expulsion lasting 10 minutes. Total duration of labor 10 hours and 20 minutes.

The placenta came away at half-past 7 in the morning. The child was a girl in most excellent physical condition. She weighed 3170 grams. The placenta weighed 550 grams.

The mother and child left the service on February 3d, both in excellent condition.

CASE IV.—X., age thirty-seven. Entered the labor ward at 11 o'clock in the evening, February 27, 1894.

Father died from tuberculosis at fifty-one. Mother alive, sixty-eight years old.

Patient had always walked well.

Menstruated at eleven. Regular. When she was at one time a nurse, she had a fever (?).

Her former pregnancies are as follows: In 1882, spontaneous labor resulting in a living girl who was brought up on her mother's breast. In 1884, spontaneous labor at term, of a boy who died from croup at two years. This child was raised on the bottle. In 1886, spontaneous labor at term, a girl, brought up on the bottle, and who died when one year old from meningitis. In 1888, spontaneous labor. The child, a boy, was brought up on the bottle, and died at five years of age from infantile paralysis.

The present pregnancy. The patient does not know just when she had her monthlies the last time. The uterus is 36 1-2 centimetres in height. During her pregnancy she had a generalized and very marked oedema of the lower limbs, vulva and lower part of the abdominal wall. The patient complains of palpitation and dyspnoea. A systolic murmur and a *bruit de galop* were heard at the apex; while a slight murmur was heard over all the orifices. There was no albumen in the urine at labor.

Examination before the labor was as follows: there was an intermittent *bruit de galop* with an intense systolic murmur. (Edema very marked. Small varicose veins on the legs. Vertex presentation. Position, left anterior. Pelvis normal.

Labor began at 6 o'clock, on the afternoon of February 27, 1894. She

entered the labor ward at 11 o'clock, which time the dilatation was about as large as a quarter of a dollar. Position the same. Dilatation was complete at 5 o'clock on the morning of February 18th. The descent was posterior occiput. Spontaneous expulsion of the child at 20 minutes past five in the morning. The duration of the period of expulsion was 20 minutes; while the total duration of labor was 11 hours. The placenta came away by simple extraction, 35 minutes after the birth of the child. The latter was a girl in excellent physical condition, and weighed 3120 grams. The placenta weighed 520 grams. Mother and child left the hospital on February 26, 1894, in excellent health.

CASE V.—D. C., age thirty-five. Parents in good health. The patient has always walked well. Menstruated at thirteen, and has always been regular. She had a typhoid fever at fourteen, acute articular rheumatism at fifteen, and bronchitis at twenty-four.

Former labors. In 1882, spontaneous labor at term, the child, a girl, a girl, is alive and was nursed by the dying at twelve from peritonitis. In 1884, spontaneous labor. The child, mother. The father was different for the third pregnancy.

The last menstruation occurred between the 21st and 23d of December, 1893. From the beginning of this pregnancy, the patient had a dyspnoea, which was sufficiently intense to oblige her to remain seated in an arm chair during the night.

Insomnia was frequent. At the seventh month, there was oedema of the legs and of the abdominal walls; but there was no albumen in the urine.

Examination at labor showed a dullness at the base of the right lung. There was considerable oedema of the legs and the abdominal walls. No varicose veins. Vertex presentation. Position was L. T. The pelvis was normal.

On coming to the hospital on September 6th, at 10 o'clock in the morning, this woman was found in the eighth month of pregnancy with intense dyspnoea. She was immediately placed on a milk diet with 10 centigrams of chloralose. Toward 8 o'clock in the evening of the same day the condition of the patient became worse: the dyspnoea was more intense; there was cyanosis of the face and considerable suffocation. Forty dry blisters were applied. The heart was beating in an irregular manner. It was under these conditions that it was decided to produce premature labor. Dr. Wallich, the *chef de clinique*, immediately summoned Dr. Varnier, and thinking that this woman might die at any moment, a bistoury was brought in order to perform Caesarian section *post mortem*.

The patient could not be placed in the obstetrical position and was propped up on the side of the bed with cushions; but it was necessary to immediately sit her up. Dr. Wallich, however, was able to introduce Champetier's bag while the

woman was standing up, held under the arms by two assistants.

The bag having been introduced it was filled with air and the woman seated in an arm chair with a straight back. When it was necessary to inflate the bag, or to let the air out, it was necessary to have the patient standing up. As the dyspnoea was still very intense, a subcutaneous injection of ether was given.

No uterine contraction appeared. At midnight, when the air was being expelled from the bag, the latter fell out. As some spontaneous contractions began to show themselves, it was decided to wait, and finally they became more and more numerous. At 6 o'clock in the morning dilatation was complete; but the membranes were intact. Dr. Vernier ruptured them and introduced the hand into the uterine cavity to get hold of a foot. He withdrew the left foot and extracted the child, who soon breathed. Artificial delivery of the placenta was performed as soon as the child was born.

Immediately the patient breathed more easily: the cyanosis was less and the patient could sit up in her bed. Two subcutaneous injections of caffeine were given; also 10 centigrams of digitalis. The same treatment was continued on the next day. The patient then passed one and one-half litres of urine in twenty-four hours and was drinking much milk. She breathed freer.

The heart beats were regular, and a presystolic and a systolic murmur were still heard at the apex. On

September 9th, the digitalis was stopped because the patient did not sleep. The œdema had greatly diminished. September 10th, 20 centigrams of chloralose were given, resulting in a good night's rest. September 19th, the patient was in excellent health. The œdema disappeared. Respiration was normal; and she left the hospital the next day. The child was also in good health and weighed at birth 3020 grams.

CASE VI.—L. de C., age nineteen. Entered the clinic May 26, 1893. Her mother was well. Father unknown. Two brothers and one sister in excellent health.

The patient walked at sixteen months. Menstruated at eleven, always regular. This patient had always been well in every respect. She was a primipara. The date of the last menstruation was October 10, 1892. The movements of the child were felt in March, 1893. The uterus was 30 centimetres high. The pregnancy, at the time of labor, was about seven months. The pregnancy was gone through with without any accident. No albumen in the urine. Examination at labor showed a systolic murmur at the apex, which was propagated into the axilla. The lungs were normal and there was no œdema or varicose veins. The presentation was a vertex. The position was L. T. Pelvis normal.

The labor began on May 25th at half past eight in the evening, and she entered the labor ward on the evening of the 26th at half past five, at which

time the dilatation was the size of half a dollar. The position was L. A. Dilatation was complete at 25 minutes past 9, and the membranes were artificially ruptured when dilatation was complete. The head presented in occiput posterior. Expulsion of the child at 20 minutes of 10. The duration of expulsion was twenty-five minutes. No blood was lost. Total duration of labor twenty-five hours.

The placenta came away at quarter of eleven in the evening. The child was a girl, living and in excellent condition, weighing 1960 grams. The placenta weighed 360 grams. The child died on June 6th at 5 o'clock in the evening.

The same patient entered the clinic for the second time on February 15, 1895. Her last menstruation occurred on May 23d to 26th. The movements of the child were felt towards the end of September. The uterus was 36 centimetres high. The pregnancy was at term and had not been marked by any accident. There was no albumen in the urine at the time of labor.

Examination at labor showed the same lesions of the heart. Vertex presentation. Position L. T.

Labor began at 2 o'clock in the afternoon of February 15, 1895, and the patient entered the labor ward at half past three of the same afternoon, at which time the dilation had progressed to the size of a quarter of a dollar. The position was still L. T. Dilatation was complete at 20 minutes past 1. The membranes

were ruptured as soon as the dilatation was the size of half a dollar, on February 15th, at 20 minutes of 12 in the evening. The child was expelled at 20 minutes past 2 in the morning of February 16th. The period of expulsion lasted one hour. No blood was lost. The total duration of labor was about 12 hours.

The placenta came away at 3 o'clock in the morning, 40 minutes after the expulsion of the child. The child was a girl, living and in good condition, weighing 3170 grams. The placenta weighed 610 grams. The mother and child left the hospital on February 26, 1895, in excellent health.

CASE VII.—M. C., age twenty-two. Hereditary antecedents excellent. She walked at the age of nine months, and has walked well since. She menstruated at the age of twelve, stopped for two years, and then from the age of fourteen the menses have been regular, but painful.

The patient had measles at three years of age; articular rheumatism at fourteen, and afterwards, chorea. She was a primipara.

The date of the last menstruation was from the 20th to the 28th of July, 1892. The child was first felt when four months and a half along. The height of the uterus was thirty-four centimetres. The pregnancy was at term when the patient entered the hospital.

During the pregnancy, there had been some vomiting from the fifth month up to the present time. There was no albumen in the urine.

Examination at labor showed a mitral insufficiency characterized by a *steam-engine* murmur, which was propagated to the axilla. The lungs were normal, but there was a slight retro-malleolar œdema. No varicose veins. Vertex presentation. The head was engaged on the 2nd of May, the date of entering the hospital. The position was R. P. Pelvis normal.

The patient entered the labor ward at half past 11 in the evening of May 2nd. Labor began at 8 o'clock in the morning of May 3rd. The position was still R. P. Dilatation was complete at 8 o'clock in the evening of May 3rd, making the duration 12 hours. Spontaneous rupture of the membranes at quarter past seven in the evening, at which time the dilatation was as large as the palm of the hand. The head was extracted in O. P. Spontaneous expulsion of the child at quarter of 9 in the evening. Duration of the period of expulsion was 45 minutes. No blood was lost. Total duration of labor 12 hours and 45 minutes.

The placenta came away at half past 9. The child was a girl, living, in excellent health, and weighed 2160 grams. The placenta weighed 150 grams. The mother and child left the clinic on May 12th, in excellent health.

CASE VIII.—M. B., age 20. Her parents are in good health. She has always walked well. Menstruated at fifteen, and has been regular ever since. She has never been sick. The patient is a primipara. The

date of her last menstruation was July 23rd, 1892. The uterus was 35 centimetres high. Pregnancy had given rise to no accidents. There was no albumen in the urine.

Examination of the patient at labor showed a very marked systolic murmur of the *steam-engine* variety. The lungs were normal. There was no œdema or varicose veins. Vertex presentation. Engagement of the head had occurred in R. P. Pelvis normal.

Labor began at 2 o'clock on the morning of May 11, 1893, and the patient entered the labor ward a quarter of an hour later, at which time the dilatation was about the size of a quarter of a dollar. Dilatation was complete at 5 o'clock in the morning. Premature rupture of the membranes at 10 minutes of 2. The head was extracted in occiput posterior. Expulsion of the child at 6 o'clock in the morning. Duration of the period of expulsion one hour. No blood lost. Total duration of labor about 4 hours.

The placenta came away at half past 6, 30 minutes after the child. The latter was a girl, living, and weighing 3250 grams. The placenta weighed 500 grams. The child and the mother left the hospital May 20, 1893, both in excellent health.

CASE IX.—L. L., age 21. The patient's mother died from tuberculosis at the age of twenty-six.

The patient has menstruated regularly since the age of fourteen. She had measles and scarlet fever at the age of nine; three attacks of polyarticular rheumatism at sixteen,

eighteen and nineteen years. In January, 1893, the patient had a left-sided hemiplegia with difficulty in speaking. She went to the Lænnec Hospital, where she remained two months and a half, receiving treatment by electricity and salicylate of soda. She recovered her movements during her stay in the hospital; but after leaving, remained for some months without being able to walk.

The patient stated that she had always felt symptoms of cardiac trouble. She got out of breath at the least effort or by going up stairs, and she could not run. As far back as she could remember, the patient said that her legs would swell after a short walk.

Menstruated for the last time on July 20, 1894. Active movements of the child were felt in November, 1894. April 24th, she entered the hospital. The pregnancy was at term. The height of the uterus was 31 centimeters.

During pregnancy there was œdema and varicose veins of the lower extremities up to the month of January. The symptoms disappeared as soon as the patient stopped working. There was no albumen in the urine.

Examination before labor demonstrated a systolic murmur at the apex, extending into the axilla. Respiration was weak on the right, with some subcrepitant rales at both bases. No œdema. A small varicose vein on the left leg.

Vertex presentation. Position R. P. Pelvis normal.

The first pains were felt at 2 o'clock

in the morning, and were very strong at 8. The patient entered the labor ward at a quarter past 8 in the morning of April 24, 1895. Dilatation was complete at 10 minutes past 7 in the evening, making the duration of dilatation 9 hours and 40 minutes. Premature rupture of the membranes occurred at 2 o'clock on the morning of April 25th. The extraction of the head was in O. P. The child was expelled at 20 minutes of 7 in the evening without any loss of blood.

Total duration of labor 10 hours and 40 minutes. Placenta came away 40 minutes after labor.

As soon as the child was expelled, the pulse was 80. The boy weighed 2950 grams; was well built and very lively. The placenta weighed 510 grams.

The mother was very well after the labor; although she said she was a little out of breath during the period of expulsion. The patient nursed her child without any bad results.

Dosage of Hemoglobin in Gynæcological Cases. Bartholinitis. Posterior Vaginal Cœliotomy. Medical Treatment of Dysmenorrhœa. Surgical Treatment of Prolapsus Uteri.

(NOTES FROM THE GYNÆCOLOGICAL CLINIC OF DR. CUMSTON. REPORTED BY L. F. G.)

The importance of knowing the per cent. of hemoglobin, as well as a blood count, to ascertain the condition of the blood in surgical and gynæcological cases is not generally recognized by surgeons.

Dr. Cumston resorts to blood examination in many cases, both surgical and gynæcological, especially where operative interference is indicated. He considers Gower's hemoglobinometer as very satisfactory and sufficiently exact for all practical purposes. In cancer, the per cent. of hemoglobin is nearly always low, reaching even to fifteen per cent. in a case which the professor had seen. Exceptions to the rule occur, however,

and a patient with carcinoma of the splenic flexure of the colon, on which Dr. Cumston had recently operated, had blood containing eighty-nine per cent of hemoglobin. A fair prognosis was made as to the lease of life in this case on account of the good condition of the blood, and in fact the patient survived over six months the operation. Nothing radical could be done, as the incision showed that the mesentery was riddled with infiltrated glands.

There was one fact not to be forgotten. In cases in which there is a complete obstruction of the ductus communis choledochus, with resulting retention of the bile and its pig-

ments, the latter accumulated in the liver, where they destroyed the hemoglobin, which was eliminated in the form of biliary pigment.

The result of this destruction of hemoglobin would be a very low per cent. when examined.

A patient was then shown with carcinoma of the cervix, not very advanced, but invading the vaginal walls, thus contra-indicating any radical operation. The patient, aged forty-seven, was not cachectic. Hemiglobinometer showed the per cent. of hemoglobin to be thirty-five, and an early cachexia with death was predicted by the professor.

A case of abscess of the vulva-vaginal gland in a woman aged twenty-four was next shown. This disease is called bartholinitis by Dr. Cumston, and he considers it an inflammatory process ending in either a canalicular or parenchymatous abscess of the vulva-vaginal gland.

The affection is always due to a pus-producing organism, but *may* occur without gonorrhoeal infection: the gonococcus is consequently not the *specific* microbe of this particular abscess.

The etiology of this affection is very often a gonorrhoeal infection, but usually there is a *mixed* infection of the gonococcus and staphylococcus. The former organism prepares the soil for the latter, so that when the pus from these abscesses is examined bacteriologically only the staphylococcus is to be found, Neisser's organism having disappeared.

The pathological anatomy, accord-

ing to Dr. Cumston, is as follows: Considerable epithelial proliferation in the excretory ducts: embryonic cell infiltration extending around and along the ducts; the formation of pericanalicular abscess explain the pathogenesis of the relapsing form of this affection so frequently met with.

As to treatment, a simple abscess of the gland should be incised. When the affection is chronic the gland should be extirpated with all aseptic precautions.

A patient presenting an enlarged tender ovary, prolapsed and adherent in the left vaginal cul-de-sac, was then brought before the class, and after discussing the symptoms and diagnosis, Dr. Cumston said that posterior vaginal cœliotomy was a most logical and direct way for unilateral extirpation of the diseased adnexa, as in the case under consideration. The operation in no way changes the static conditions of the uterus.

The *modus operandi* is not complicated, although complete bilateral extirpation is not easy. The posterior incision was in the majority of cases superior to anterior colpotomy.

The vaginal route was decidedly indicated for the removal of small tumors, and in such cases was far less difficult than laparotomy. The formal indications of posterior vaginal cœliotomy were, *the small size of the diseased organs, their mobility, unilateral lesions, the possibility of lowering the uterus to render the adnexa easy of reach to the fingers and instruments.*

The contra-indications were a large

sized mass, immobility, many adhesions, fixed position of the adnexa in front of the broad ligament in the prevesical fossa.

In all operations performed for pelvic trouble, Dr. Cumston insists on trying to render the intestinal tract aseptic. For this naphthol B, 20 centigrammes in a cachet after each meal, or creolin formulated as follows were recommended:

R	Creolin.	6.0
	Alcohol. dil.	1.0
	Ext. liquirit.	
	Pulv. liquirit.	aa 6.0
	Gum. adragant.	1.0

m. f. s. a. pil. no. C.

D. S. Take one pill four times daily.

Dysmenorrhœa in well-developed, non ænemic women, where after careful bimanual examination no inflammatory process is to be found in either the uterus or adnexa, viburnum prunifolium will give very excellent results.

In ovarian dysmenorrhœa, when the flux is scanty and functional development delayed, the exhibition of iodide of soda, combined with nux vomica and iron, is indicated.

Dr. Cumston thinks that antipyrine is of considerable value in certain cases of this disorder of the menstruation, at the dose of from two to four grammes in twenty-four hours or combined with the bromides, the following formula being given as an example:

R	Antipyrini.	10.0
	Ammon. bromid.	
	Kalii bromid.	aa 5.0
	Ext. vibur. prunifol. fld.	20.0
	Spir. vini gallici.	
	Syr. cort. aurant.	aa 40.0
	Aq. dest.	60.0

M. D. S. Take a teaspoonful four or five times daily.

A most important point in treatment is to keep the bowels open, and Carabana water, at the dose of a wineglassful before breakfast, was most highly recommended. Those patients who could not afford the water were to take the following:—

R	Pulv. jalap.	10.0
	Pulv. rhei.	
	Oleosacch. limonis.	aa 5.0
	Sulphur. præcip.	
	Kalii bitartrat.	aa 20.0

M. D. S. A teaspoonful in a glass of water, to be taken in the morning.

Dr. Cumston also impressed forcibly upon the class that morphine or the preparations of opium were to be avoided in the relief of pain, which can be very well controlled by a suppository composed as follows, recommended by Farlow:

R	Ext. belladon.,	
	Ext. cannabis indicæ,	aa 0.02
	Ol. Theobrom. q. s. ut f. supposit. no.	
I. D.	tal. dos. no. X.	
D. S.	Insert one suppository every night and morning if necessary.	

Another excellent formula much relied on by the professor was:

R	Ext. belladon.	0.01
	Pulv. nuc. vom.	
	Ferri reduct.	aa 0.02
	Ext. cinchonæ q. s. ut f. pil. no. I. D.	
	tal. dos. no. xx.	

S. Take one pill three or four times daily.

When the patient showed signs of hysteria, a pill containing camphor was of service.

R	Pulv. camphor.	0.10.
	Res. asafœtid.	0.05.

Ext. gentian. q. s. ut f. pil. no. I.

D. tal. dos. no. XXX.

S Take five or six pills a day.

Medical treatment also included electricity, massage and a proper hygiene, the latter should never be overlooked.

Dysmenorrhœa in the vast majority of cases was only a *symptom* of some gynecological affection, such as perimetritis, metritis, the various deviations of the uterus, salpingitis, ovaritis or cystic degeneration of the ovaries, as well as stenosis of the cervix, all of which required a proper surgical interference.

In closing, the professor said that he desired to point out how necessary it was for the surgeon to be familiar with the materia medica and to know how to prescribe, an accomplishment which was rarely seen in these days of compressed tablets, and also the fact that just because a woman complained of some pain or inconvenience in the genital organs it was not necessary for the young professional man to consider his patient as subject for operative surgery.

Many cases of dysmenorrhœa were successfully treated medically, and the tendency of the day was to submit women to many needless operations, although it was to be distinctly understood that many conditions could only be relieved or cured by the knife in the hands of a man possessed with a profound knowledge of the technique and indications of the current gynecological operations.

The surgical treatment of prolapsus uteri comprised four operations,

viz: *plastic operations* on the vaginal walls and perineum: *Alexander's operation*: *hysteropexy*: *vaginal hysterectomy*.

Prolapsus of the uterus was produced by two kinds of anatomical conditions, viz: (1) insufficiency of the means of suspension of the uterus: (2) a relaxed condition of all the soft parts which make up the pelvic floor, that is to say, the vagina and perineum.

Slight prolapsus should be treated by anterior colporrhaphy combined with posterior colpoperineorrhaphy. When the uterus was hypertrophied, amputation of the cervix should also be performed.

Complete prolapsus was not cured by hysteropexy, according to the experience of Dr. Cumston. This operation was serious, as the peritoneal cavity was opened, a fact that was treated too lightly by many operators.

As to vaginal hysterectomy for prolapsus, it was only to be performed in cases in which the parts had become strangulated and could not be reduced, or if gangrene had set in from the strangulation. When a uterus, having a fibroid, prolapsed, vaginal hysterectomy was indicated, not for the prolapsus but for the neoplasm.

If vaginal hysterectomy is resorted to in cases of prolapsus, the operation should *always* be completed by a resection of the vagina and posterior colpoperineorrhaphy.

Regarding Alexander's operation, it was only of use when the uterus

was *small* and for this reason it was often successful in prolapsus in old women. But even in these cases, anterior colporrhaphy and perineorrhaphy should be performed.

No matter what operation was se-

lected as proper for the particular case, it was to be remembered that a plastic operation on the vaginal walls and perineum should always be performed if complete success was to be attained.

The Late Results of Conservative Operations on the Ovaries.

BY R. DONNET, M.D.

[Concluded from June number.]

CASE VIII.—L. F., age 29. Six pregnancies, one of which was a miscarriage at five months. The patient had suffered since her first labor eight years before. The pains were seated on both sides, shooting down the legs and in the region of the kidneys.

Continued pains, which increased at the time of the menses. The patient had twice been in the hospital for these pains, as well as for leucorrhœa, which had been present since her first labor. Dilatation of the uterus was performed, followed by injection of tincture of iodine.

The menses had always been regular, but painful since the age of seventeen.

On examination, the uterus was found low down, movable and in retroversion. On the left the ovary was increased in size; its surface irregular, and it appeared to be adherent behind. On the right, the ovary was more movable and as large as a pigeon's egg. The tubes were healthy.

Laparotomy was performed on December 23, 1893. The left ovary was soft, large and œdematus, and filled with small depressible points. The tube was healthy. Twelve deep ignipunctures were made, after which the ovary was reduced to one-quarter of its size.

There were some adhesions on the right, and the surface of the ovary presented some projections which were made up of follicular cysts. Eleven deep ignipunctures were made in the gland. The tube was healthy. Hysteropexy with four sutures.

The results of the operation were of the simplest. The patient left the hospital completely cured, without any more pain, and with regular and normal menses.

As to the ultimate results: she was seen on November 20, 1894, and told us that she had become in the family way three months after the operation. The pregnancy was normal and ended in the birth of a living child on February 24, 1894. At the time the patient was seen

(November) the child, a boy, was in excellent health. In spite of the hysteropexy, this labor was in every way normal. The abdominal cicatrice had remained solid and there was no trace of eventration.

By examination, the uterus was found normal and very movable. Nothing could be felt on the left: on the right a small, hard tumor, very movable and painless, could be felt. The pains had completely disappeared and had not recurred since the labor. The menses were absolutely normal.

CASE IX.—R., age 25. Operated on for a tubo-ovariitis by Dr. Picque. This patient presented, shortly after the obliteration of her left ovary, symptoms of acute peri-metritis, with rise in temperature and the appearance of a retinent and painful tumor. Dr. Pozzi then performed another laparotomy on December 29, 1893. After having opened the abdomen with difficulty, on account of the intestinal adhesions on the anterior abdominal wall, the right ovary was searched for and found in a condition of sclero-cystic degeneration. The tube was healthy. A follicular cyst, the size of a walnut, was resected in the usual way, and four small cysts were burst open with the thermo-cautery.

The tumor on the left was made up of a mass of intestinal coils, adherent on account of a peritonitis which was limited around an infected pedicle produced in the former operation of the removal of the ovary. This mass adhered to the walls of the pelvis and to the uterus, covering the latter like a sort of casque.

The results of the operation were simple. The patient left the hospital cured. When she left her menses had not appeared.

The ultimate results were as follows: She was seen on November 25, 1894. She still had some pain in the abdomen, especially on the right, but they were very much less than before the operation. The menses were regular, normal in quantity and painless. (The menses were not painful before the operation.) At that time (Nov.) the woman thought she was pregnant, because her menses had always been regular up to that time. She also said that she noticed an increase in the size of her breasts.

By vaginal examination the uterus was found very large, but the cervix was not softened. The left cul-de-sac was not elastic; the right one was normal and pressure produced no pain. From this we suspected pregnancy.

CASE X.—M. G., age 32. Had had three normal labors and two miscarriages. The patient had suffered from pain in her abdomen since her first labor; that is to say, for eight years. These pains were seated especially in the left, and did not increase at the time of the menses, but were exaggerated by walking or when standing up. These pains had notably increased in the three preceding years. The cervix was long and indurated; uterus, in normal position, immovable on account of very strong adhesions which were found in Douglass's pouch. The adnexa were immovable and covered over by these

adhesions, and certainly presented chronic inflammatory lesions.

Laparotomy was performed on December 13, 1893. The adhesions were not as tough as we had thought. The left ovary contained a serous cyst, its contents being of a rose color and the size of a walnut. It was burst open and a part of its walls resected, while the remaining part was cauterized with the thermo-cautery. A part of the thinned wall was resected and was then sutured with catgut. A small cyst situated at the external aspect of the ovary was also burst open and cauterized.

The right ovary was nearly healthy; two small folliculated cysts the size of a millet seed were found. Both the tubes were permeable.

The results of the operation were simple. The wound was completely united at the end of eight days. The patient had suffered from pain in the abdomen for five days after the operation, at the time when she should have had her menses.

The menses appeared on July 8, 1894, and were painless. The patient left the hospital on the 14th of the same month. She no longer had any pain in the abdomen. On the 9th of March she sent us word as to herself. She had had normal menses without pain. Still had some vague pains on the left.

CASE XI.—M. N., thirty-three years old. Had never been pregnant. Profuse leucorrhœa for the last year. Pains in the abdomen for the last four months. Painful and abundant

menstruation for the last eight months.

Examination. The uterus was found in ante flexion and very movable. In the left cul-de-sac a tumor was found the size of a fetal head and separated from the uterus by a groove. It appeared to be seated in the broad ligament, and a diagnosis of cyst of the left broad ligament was made.

Laparotomy was performed on April 12, 1893. A left para-ovarian cyst was found and removed along with the corresponding adnexa. The right ovary was soft, enlarged, microcystic and contained five small cysts which were opened with the thermo-cautery. The tube was healthy.

The results of the operation were that the wound healed by first intention. The patient left the hospital on May 17, having had her menses without pain and in a less quantity than before the operation.

The ultimate results were as follows: The patient remained cured for several months. She was seen on November 25, 1894. The pains had come back, but were not so severe as before the operation, and they had also changed in character. The patient presented symptoms of enteropneumosis. Dr. Pozzi, who had been consulted some time before, had recommended the patient wearing a Glénard support which had greatly helped her.

Examination showed that the uterus was adherent before and behind, as well as retroverted. On the

left, the cul-de-sac was normal. On the right, an enlarged but only slightly painful ovary was found. The patient had leucorrhœa and a chronic metritis.

CASE XIII. M. C., age thirty-two. Five pregnancies, none of which went to term, although no trace of syphilis could be found. The patient had suffered for four years. The pains were seated in both sides of the abdomen and were very much more intense at the time of the menses. The latter had been very painful since the age of seventeen. They were also very profuse. Twice the patient had had metrorrhagia which twice required curettement. These operations caused the flux to disappear, but not the pains, which had increased to such a point that interference seemed advisable.

Examination under chloroform showed that the lesions were not very distinct, and caused Dr. Pozzi to defer for the time an operation; and massage with hot vaginal irrigations and rest in bed were ordered. In spite of this treatment, the last menstruation (in the middle of January) was very painful, and operation was decided upon.

Laparotomy was performed on January 29, 1894. The left ovary was small and adherent to the neighboring parts and to the tube, which was healthy. It was riddled with small transparent bosses. Four ignipunctures were made.

The right ovary was increased to more than one-third its normal size. A cyst the size of a bean was re-

sected. Five other cysts were also opened and cauterized. When the large cyst had been removed, there remained a wound which was closed by catgut suture. The tube was healthy.

The result of the operation was simple, with remission by first intention in eight days. The patient no longer suffered. She had her menses on February 22d. They were not painful and lasted three days. Vaginal examination showed that the culs-de-sac were free and were perfectly painless.

The ultimate results were as follows: She was seen on November 20, 1894, and said that she was very much improved by the operation. However, there were still some pains in the abdomen, sometimes on the right, sometimes on the left, as well as in the region of the kidneys. These pains were very bearable and occurred after the patient was tired. By examination, the uterus was found normal as to situation and size. The culs-de-sac were perfectly elastic and no tumor could be found.

The patient thought that she was in a family way, about three months along; but it was impossible to discover a sign sufficiently distinct to be able to affirm this condition.

CASE XIII. — J. D., aged thirty. Four normal pregnancies. The patient had suffered for the last five years. The pains were seated especially on the left, were very sharp, and came in attacks which obliged the patient to remain in bed. All medical treatments which had been

undertaken only helped the patient very little. For two years the pains had resisted everything and were increasing from day to day. The menses were normal and there was no leucorrhœa.

The uterus was small and very movable; the adnexa seated very high up, did not appear increased in size. In Douglass's pouch a spherical, fluctuant tumor was found. The diagnosis was cyst of the left ovary or cystic tumor depending on the left ovary.

Laparotomy on March 12, 1894. Ablation of the left cyst. The corresponding ovary appeared to be wanting and the tube was comprised in the pedicle. On the right, the ovary was double its normal size, its surface being covered with bosses. The external part of the ovary was resected, and the cysts were punctured with the thermo-cautery. After the operation the ovary had diminished to a good third its original size. The tube was healthy.

The cure was rapid, the pains lasting up to March 20. At this time the patient had her menses and the pains entirely disappeared.

The ultimate results were as follows: The patient was seen on November 25, 1894, and said she was very much pleased with the operation; she no longer suffered, and said she was completely cured. The menses were normal. Examination showed that the result was perfect. The uterus was movable and in every way normal. The culs-de-sac were supple and painless. The cicatrice was perfect.

CASE XIV.—E. G., aged twenty-four. Three labors and one miscarriage. The disease from which she suffered dated back from the last labor. At that time the patient had thick leucorrhœa and began to suffer from the abdomen. The pains were more acute on the right and shot down to the kidneys and thighs. The menses were very painful and abundant, and for the last ten months had taken place in the form of menorrhagia, which lasted 15 days each time.

Examination under chloroform, at the time of operation, showed that the uterus was enlarged, very movable, and slightly lowered. The left ovary appeared increased in size, was slightly adherent; the right appeared normal. Laparotomy on May 17, 1894. On the left was found a follicular cyst filled with a serous liquid of about the size of a walnut. Other small cysts were burst with the thermo-cautery. After this operation their only remnant was a stump of the ovary about the size of half the original organ. On the right, the same lesions and the same operation. The stump of the ovary was about one-third of the size before operation. Both tubes were healthy and permeable.

The wound healed in eight days, and the patient no longer suffered. By vaginal examination a soft, depressible mass was found in Douglass's pouch and appeared to be due to a small collection of liquid. The ovary was probably comprised in this liquid collection, because by pressure a very acute pain was produced.

The ultimate results: The patient was seen on November 25, 1894, and said that she was very much relieved, but still had some pains on the right.

The menses, which were irregular and abundant, accompanied by menorrhagia, had now become very regular and normal in quantity, although still slightly painful. There was still leucorrhœa, and she also suffered at micturition. By examination, the uterus was found enlarged and movable: the cervix was large and presented granulations. The culs-de-sac were supple and the ovary could not be felt. The examination was not painful.

The condition then indicated an amputation of the cervix and curettement.

CASE XV.—M. B., aged twenty-four. One pregnancy at term at twenty. Pains in both iliac fossæ. After this labor, menses painful, irregular, and very profuse.

Examination produced a sharp pain on the left in Douglass's pouch. A hypertrophied and painful ovary was felt. The uterus was normal and ante-flexed.

Laparotomy on June 7, 1894. Partial resection of the right ovary, which contained a large cyst of the corpus luteum. The ovary was thus reduced to one-third its original size. The left ovary was considered as lost, so great was the sclerous degeneration: and was consequently removed. Both tubes were permeable.

After the operation the menses appeared on the 10th of June, thus being fourteen days ahead of the time.

They lasted four days and were not painful. The patient left the hospital on July 6th. She no longer had any pains. Examination showed a large uterus with a granular cervix. The ovaries could be felt and were still slightly painful on pressure. As there was leucorrhœa, and on account of the condition of the cervix, curettement was proposed, but was not accepted.

Ultimate results: Seen on November 25, 1894. The first three menses following the operation were painful, but they had become regular, were not painful, and were normal in quantity. The pains in the abdomen had disappeared, and the patient said she was completely cured.

CASE XVI.—E. G., aged thirty. Had had pains in the abdomen, in both iliac fossæ and in the kidneys. The menses were painful, irregular, very profuse and sometimes lasted eight or ten days. Examination showed a normal uterus. In the lateral culs-de-sac the ovaries could be felt. They were hard, very painful, covered with bosses, but not increased in size.

Laparotomy performed on March 21, 1894. Some adhesions were broken. The ovaries, riddled with small transparent cysts, were pierced with ignipunctures. The tubes were healthy.

The patient left the hospital with some slight pains and had not menstruated.

The ultimate results: She was seen on November 20, 1894, and still had some pains, especially on the

right; but they were very much less than before the operation. The menses occurred several days before time. They were less profuse and only slightly painful. The patient said that she was pleased with the operation, and that the pains that she felt were not the same as before the interference.

CASE XVII.—E. S., aged twenty-six. Had a labor at twenty-five. After this time the patient had suffered from pains in the abdomen, especially on the left. The pains had become so severe that the patient could no longer work, and was obliged to go to bed often. The menses were regular, but painful and profuse. Examination, which was very painful, showed the uterus enlarged and prolapsed. The left ovary was increased in size. A diagnosis of bilateral ovaritis was made.

Laparotomy performed on March 5th. Small incision. The left ovary was bound back by stringy adhesions, and in order to free them the patient was placed in Trendelenburg's position.

The tube was permeable. The ovary was riddled with small serous cysts, and contained a large cyst the size of a bean. The cysts were punctured and cauterized with the thermocautery. The large cyst was opened by an incision two centimetres long. The internal aspect was cauterized; a part of the wall was excised, followed by suture of the wound. In all eight ignipunctures. On the right there were also adhesions. The ovary was smaller than on the left, but

nevertheless was riddled with small transparent cysts. Eleven ignipunctures. The tube was permeable, but in a state of hyperemia.

When the patient left, she still suffered slightly, and the menses had not recurred.

Ultimate results: The patient was seen November 25, 1894. Her menses were normal in quantity, but painful and frequent. There was still some pains on the left, but not so severe as before the operation. The culs-de-sac were supple and painless. The uterus was large and painful on pressure; and from the cervix there came an opaque, sticky, white liquid. This woman was the subject of chronic metritis. Should have been cured.

CASE XVIII.—M. G., age thirty. Entered the hospital March 6, 1894. A miscarriage at six months and a half on account of an accident. At twenty-six she had a labor at eight months, resulting in a living child, who died five days after birth. She had suffered since her miscarriage five years before. The pains were seated in both sides of the abdomen, shooting down to the kidneys, and in the thighs. This occurred in attacks and were sometimes accompanied with vomiting. The pains doubled their intensity at the time of menstruation. The latter were regular, but painful on the first day, lasted three or four days, and were slight in quantity.

Under chloroform, the uterus was found in anteflexion. The left adnexa were adherent, but only

slightly increased in size. On the right the adnexa were movable and fled from the finger. Probably a left-sided peri-ovaritis.

Laparotomy performed on March 21, 1894. A small incision. Trendelenburg's position in order to break up the adhesions of the left ovary, which was easily accomplished. A very advanced sclerocystic degeneration with peri-ovaritis was found. Tube healthy. Lesions were the same on both sides. On the right there was a cyst of the corpus luteum the size of a walnut, which was resected and its surface burned with the thermo-cautery, and the borders brought together with catgut sutures. The small cysts of the left ovary were burst with a thermo-cautery and their internal aspects cauterized. Four ignipunctures.

The patient left a month after the operation and had her menses a fortnight after the operation. They were not painful and only slight in quantity.

Ultimate results: She was seen in November, 1894. The pains in the abdomen had disappeared; but there were still some pains in the back which were hardly noticed by the patient. The menses were no longer painful. They were regular and only slight in quantity. By examination the culs-de-sac were found supple and painless. The uterus was enlarged with a granular cervix. Leucorrhœa. Schroeder's operation was indicated.

CASE XIX.—J. D., age twenty-nine. Miscarriage at three months,

in February, 1894. Since June, pains in the abdomen on both sides as well as abundant leucorrhœa. Menses painful, but regular. Uterus normal. The left adnexa were increased in size, movable, and covered with bosses. On the right they appeared adherent to the uterus. Diagnosis was chronic tubo-ovaritis, especially on the left.

Laparotomy on April 20, 1894. The left ovary was enlarged, riddled with cysts and filled with tracts of sclerosis. Ignipuncture of the cysts. Tube healthy. The left ovary was also increased in size, irregular in shape and covered with bosses. The same treatment.

The patient recovered quickly, but continued to suffer.

The ultimate results. Seen on Sept. 11, 1894. The pains had diminished since the operation, but they were a little sharper on the right. The menses were still painful. The left cul-de-sac was free on the right; and behind, a round tumor the size of an egg, adherent to the uterus, and very painful, was found. Thick leucorrhœa staining the linen.

CASE XX.—E. B., age twenty-four. One labor at term; two miscarriages, following which the patient commenced to suffer in the abdomen, and the menses became painful and profuse; slight leucorrhœa. Curettement on February 27, 1894. The uterus was in anteflexion and quite large. On the left, a small ovary was felt which appeared adherent. The right ovary fled before the finger.

Laparotomy on March 21, 1894. The left ovary looked like a mushroom. At its external aspect there was a cyst of the corpus luteum, fluctuant and the size of a walnut. This cyst was resected, and three other small ones were treated by ignipunctures. The right ovary presented the same aspect. Ignipuncture of three sanguinous cysts.

Ultimate results: The patient was seen in July, 1894, and had menstruated twice. The menses were regular, less abundant than before the operation, but were very painful. Very sharp intermenstrual pains occurring in both sides of the abdomen still continued. At this time not much of anything could be found by vaginal examination. The right cul-de-sac was very painful. The uterus was slightly enlarged and leucorrhœa was present. On the left a tumor the size an egg, adherent to the uterus, could be felt.

The patient entered the hospital at this time; but was not operated on.

A second laparotomy was performed in the month of October, 1894, by Dr. Maurange. A bilateral ablation of the adnexa was performed. Since this last operation the patient has no longer suffered.

CASE XXI.—M. M., age twenty-eight. One normal labor and one miscarriage at four months; since which accident the patient has had pains in the abdomen, in the kidneys and the thighs. These pains increased at the time of the menses, which were very irregular. Bartholinitis in December, 1893. On exam-

ination, the uterus was found in retroversion and retroflexion. On the left the adnexa were increased in size. On the right, the ovary was hard and appeared sclerous.

Laparotomy performed on March 5, 1894. The left ovary was enlarged, filled with small cysts, six of which were burst with a thermo-cautery. One of these punctures was transformed into an incision two centimetres long, followed by a resection of the cystic walls. A catgut suture stopped the hemorrhage. Tube healthy. The right ovary was riddled with six ignipunctures, and the uterus sutured to the anterior abdominal wall.

The patient got well without accident. She left the hospital, still complaining of some insignificant pain.

Ultimate results: Seen on November 25, 1894. The menses were irregular as before the operation; painful. The pains still persisted, especially on the right. Vaginal examination very painful. The cul-de-sac appear less supple than the normal, but no tumor could be felt. Chronic metritis. This patient received no benefit from her operation.

CASE XXII.—J. L., age nineteen. Entered the hospital in February, 1894. Never pregnant. Menstruation regular up to seventeen, at which time the patient had abundant metrorrhagia three times a month, accompanied by a very sharp pain, especially on the left. Curettement was performed three times without stopping the hemorrhages. The continu-

ed current and rest in bed were also of no avail. In other words, all possible treatments were applied without either the loss of blood or the pain; and on account of this, laparotomy was decided on.

Examination under chloroform showed the uterus in anteflexion. The left ovary was hard to find and appeared to be thrown over on the side and very adherent. The right ovary was movable and did not appear increased in size, but the tube was thickened.

Laparotomy on May 28, 1894. The left ovary was bound down in the pelvis by the extreme shortness of its ligaments; but was not adherent. It was with difficulty drawn up, and it was then noticed that it was small and riddled with small cysts, while at the hilum there were small fibrous strictures. The tube was healthy; but the ovary was so altered that extirpation was considered advisable. But before doing this the right ovary was examined, and at its external end cyst of the corpus luteum and three other small cysts were found.

Sclerous transformation was less advanced than in the left ovary. The cyst of the corpus luteum was removed by scissors, and was about the size of a walnut. The wound made by the extirpation of this cyst was canterized and sutured with catgut. Three ignipunctures.

The day following the operation there occurred a metrorrhagia which lasted six days. The pains came back eleven days after the operation.

The ultimate results were *nil*. The patient suffered as before the operation. The pains were sometimes on the right; sometimes on the left, and the metrorrhagia persisted. Still more, there formed over the abdominal cicatrice a deep, but parietal fistula, which persisted in spite of energetic treatment. On October 7, 1894, Dr. Pozzi performed hysterectomy. After this second operation, the patient continued to suffer for some time; then the pains became less and at the present time it may be said that this patient is cured.

Examination of the specimen. The tube was adherent to the stump of the ovary. Its pavilion was free and permeable. The ovary stump was filled with small serous cysts: one of them was nearly pedunculated. Between the ovary stump and tube was felt a large corpus luteum which was about to become enucleated. The tube was absolutely permeable and nothing would have prevented fecundation if the ovary had remained healthy and if the ovaritis had not continued its evolution. This specimen demonstrates the persistence of the permeability of the tube after resection of the ovary, realizing the anatomical conditions necessary for fecundation.

On Tubercular Peritonitis.

ANTON HANE, M.D., (BASEL.)

[Concluded from June number.]

PROGRESS, DURATION, AND END.

The progress of tubercular peritonitis is chronic. Louis Alexander (1787-1872) even affirmed that every chronic peritonitis was tubercular. The duration of the disease may cover several weeks or months, but death is more frequently due to the various complications met with rather than to the peritonitis proper.

Resolution may take place, but combined experience alone can decide how long recovery may be until other tubercular manifestations appear. At any rate, recovery may extend over several months.

Death from tubercular peritonitis without a complication is either due to exhaustion, but usually after an additional œdema of the lungs or paralysis of the heart. Intestinal hæmorrhages into the abdomen or perforating peritonitis make quick the end of the life of the patient.

Where a like affection of the pleura or of the pericardium sets in, complicating this disease, or where acute tuberculosis of the lungs and of numerous other organs takes place, the organism is either destroyed by febrile consumption, or death occurs after extreme restriction of the respiration by an acute œdema of the

lungs. Consecutive amyloid degeneration of the veins leads, by increase of the hydrops, to the same end. Kaulick, Künze, von Strumpell, v. Ziemssen, assume that tubercular peritonitis always ends in death. Eichorst saw a relatively cured patient in the clinic at Zurich. Kyburg mentions a like case. Prof. Fehling, of Basle, furnishes statistics worthy of recognition, of cases cured by operation, in an essay entitled: *Contribution to Laparotomy in Tubercular Peritonitis*. (*Correspondenzblatt für Schweizer Aerzte*, 1887). He writes: "In the literature which I had at my disposal I have only succeeded in finding twenty-nine cases of tubercular peritonitis in women with exact statements as to the treatment applied."

Of these, twenty-one cases are described as encysted exsudations. As result of these operations recovery is stated to have occurred eight times for a space of over a year, several times lasting four to five years, even a case, of Spencer Wells lasting twenty-three years; in seven cases the cure is sure but the later course unknown, as the female patients could not be examined, the same going away before a year had passed since the operation; thus recovery in fifteen of twenty-one cases (or 71 per cent.); six times

death occurred after the operation—twice from sepsis, two after several months from pyemia, three times sooner or later from visceral tuberculosis.

As to free ascites with tubercular peritonitis, five cases are described. Twice change for the better is stated, twice recovery, and once death after puncture.

A false tubercular tumor, due to a glueing together of the intestines, which were covered with tubercles, was observed three times.

Result: once death after six months: once change for the worse: one change for the better.

Dr. Hermann Kummel reports also a very favorable course in this disease after operation. (Proceedings of the German Surgical Society, 1887, page 323). He says: "While formerly the disease was presumed to be a symptom of a general tuberculosis which was either already present or would break out shortly, it is now regarded as a disease which in the predominating number of cases is a local affection, and which, as well as the local tuberculosis of bones or joints, may be brought to a cure by a surgical operation, and which, according to numerous statements of other authors and my own experience, really gets cured, at least for years without symptoms, without troubles, or disturbance of the general health. Of forty cases collected from the literature, amongst which there are surely some of the ones reported by Fehling, Kummel states that twice death by sepsis, three times death through vis-

ceral tuberculosis occurred, and thirty-five times recovery up to the time of writing took place, making 87.5 per cent. cured. The prognosis is, therefore, according to the above statements, absolutely bad as regards internal treatment, very favorable as regards operative treatment.

The diagnosis of tubercular peritonitis is rather difficult. The best way to obtain a sure result is by way of exclusion. Since the patients usually present themselves to the professional man with ascites and oedema of the lower extremities, the question is (heart and kidney diseases being excluded) to decide whether the exsudate is produced from simple stoppage in the territory of the portal vein or from tubercular peritonitis. Symptoms of stoppage in the territory of the portal vein which should be considered here, are cirrhosis of the liver and thrombosis of the vena porta.

Cirrhosis of the liver is distinguished from tubercular peritonitis as follows:

In cirrhosis of the liver abuse of alcohol has preceded in a great many cases; with tuberculosis one can, perhaps, find out aetiological factors which would result in a diagnosis of tuberculosis. Farther, in tubercular peritonitis the abdomen is more frequently painful from pressure than in cirrhosis; in the former, one can feel more frequently resisting places or can recognise adhesions of the parietal and visceral layers of the serosa; a considerable tumefaction of the spleen is rare in tubercu-

lar peritonitis, but it is frequently met with in cirrhosis of the liver. Patients affected with cirrhosis show no increase in temperature, and only rarely is there an increase of pulse rate, except in passing complications and in the last stages of the affection. Both are rare in the course of tubercular peritonitis.

In tubercular peritonitis, vomitus occurs more frequently and lasts longer than in cirrhosis. The movements, as well as the constituency of the urine, do not offer in both diseases any distinguishing features. Predominancy of a collateral venous circulation, the striking decrease of the liver dullness, the presence of icterus, would indicate cirrhosis. Since, however, the majority of these symptoms may also be present in different stages of tubercular peritonitis, and as even a longer observation of the course of the disease does not always offer a decisive difference, a conclusion may only be arrived at if, after puncture has been made, a better idea of the state of the liver and the peritoneum has been ascertained with more security; also a hæmorrhagic flow would point more to tuberculosis than to cirrhosis.

The few cases of thrombosis of the lower part of the vena porta can mostly be excluded, since these are introduced by other preceding processes of disease, are frequently characterised by repeated chills, are followed by icterus and cause an intense stoppage in the territory of the portal radicles, which may even lead to hæmorrhage into the peritoneal cavity and the in-

testinal tract. Besides that, the quick development of this process is directly in contrast to the protracted course of the tubercular peritonitis. It is much more difficult to distinguish ascites in thrombus of the portal vein in consequence of compression from ascites due to tubercular peritonitis. Icterus would indicate the former.

If tumors can be felt in the abdomen, as this is the case with limited or no exsudate, it is above all necessary to distinguish from carcinoma within the peritoneal cavity.

The presence of a neoformation in another organ, a straw-colored complexion would indicate a cachectic condition due to carcinoma. Cancerous tumors are, as a rule, much larger and grow more rapidly than tuberculous tumors: further, the former appear only after a certain age. The symptoms of irritation of the peritoneum are, as a rule, unimportant in carcinoma, and the course of the same is almost always free of fever. Other tumors of the peritoneum need scarcely be mentioned here. For the female sex the differential diagnosis of chronic peritonitis (with exsudate) and of ovarian cysts is especially interesting. For the recognition of the latter there are a number of signs, which *singly* do not *prove* anything, but which, if existing at the same time, admit of the diagnosis being made with the greatest probability. Thus one is instructed to examine the extreme lateral region between the crest of the ilium and the twelfth rib. This region permits as a rule to recognize the tympany

of the ascending and descending colon. In ascites the sound is quite dull.

Another precious sign of ovarian cyst is the downward tendency of the fornix vaginae, found by bimanual examination. That also this symptom is not infallible is proved by a case of tubercular peritonitis, of which Kyburg speaks, in which the portio vaginalis uteri was pressed out through the labia. As regards the distinction, that in ascites the forward arching existed more in toto, while with ovarian cysts the finger was met by a circumscribed mass, Nierordt writes that this appears to be almost too fine a distinction and would not be true in all cases.

Mostly the form of the percussion dullness, its more round outlines, the more existing change of outlines of the percussion dullness, the portion being changed, would indicate an ovarian cyst.

Very difficult is it to distinguish the tubercular from simple peritonitis.

If the aetiological factors are wanting, and if tuberculous affections of other organs cannot be found, the differential diagnosis between simple peritonitis and the tubercular form can sometimes scarcely be made. Kyburg says that he is proud to say that the diagnosis of even famous clinicians has proved to be wrong in one or the other case.

A rather important differential symptom is the frequency of the pulse: if the same, in spite of low temperature, remains frequent, tubercular peritonitis may be suspected.

Still more difficult would be the diagnosis if Aron's assertion is true, that simple peritonitis exists also with patients affected with tuberculosis.

TREATMENT.

Up to within the last few years, this affection was only treated medically. Surgery, aside from puncture, has only come to the front within the last few years.

To prevent the loss of strength of the patient was always considered the first principle in the treatment of this disease, and a good diet combined with cod liver oil is indicated. Of special medicines we would mention the preparations of iodine, iodide of potassium and iodide of iron, *syrupus ferri iodatus*, which apparently are prescribed sometimes to advantage. For diarrhoea and severe pains, opiates are to be given: for the latter, also, a Priesnitz poultice has also a good effect in this disease, according to Eichorst. As regards the diuretica, Ziemssen says that they will scarcely be of use in diminishing the ascites, at the same time most of them could scarcely be used on account of the existing stomach troubles.

As regards puncture, Kaulick writes as follows: "It is necessary in cases where very great distention of the abdominal cavity has produced troubles of the digestive function, from fluid or meteorism, and where the respiration becomes so difficult that there is danger of an oedema of the lungs. In cases where marked

symptoms of peritonic irritation exist, the operation ought to be delayed as long as possible, since otherwise a second accumulation takes place within a short time. Where, however, the symptoms of irritation are of a minor importance, the physician should not hesitate to make a puncture, as the same increases the possibility of nutrition, facilitates the respiration, increases the energy of the heart, and by this helps the diuresis.

In cases where all symptoms indicate a tumor in the abdominal cavity, it is not advisable to make a puncture, as it may be foreseen that the hæmorrhage will be increased immediately by the sudden change of pressure having taken place. The fluid ought never to be removed entirely, since, in consequence of the diminished pressure, capillary hæmorrhages might easily result. The abdominal walls, which are distended

beyond measure before withdrawing the fluid, are not able to counteract the diminished pressure produced by the removal of the exsudate.

The surgical aspect of dealing with this disease consists only in an exploratory incision: the same is done particularly on account of a not fully settled diagnosis or often in consequence of a wrong diagnosis. In most cases a thorough peritoneal toilette should be made by carefully sopping up the ascitic fluid with carbolic or sublimate tampons, and afterwards dusting the abdominal cavity with iodoform. If an encysted exsudate exists, the pocket should be opened, the fluid removed, the walls thoroughly rubbed out antiseptically and, if possible, drained. Very often, on account of intense adhesions of the peritoneal folds, nothing but an incision and removal of the fluid can be accomplished.

REVIEW OF GYNÆCOLOGY.

THE MANAGEMENT OF OCCIPUT-POSTERIOR POSITIONS. By JULIUS ROSENBERG M.D.

This has always been a favorite subject for essays and discussions at obstetrical meetings, yet opinions widely differ as to the best management of these cases. While some authors consider that occiput-posterior cases demand interference as soon as possible, others of equally keen observation and experience are not in the least alarmed if their ex-

amination reveals and occiput to the rear.

I explain these opposing views by the fact that in my experience occiput-posterior positions should be divided into two groups in the one, *anterior rotation is the rule*, and in the other, *it is the exception*.

The first group is composed of women with a roomy pelvis, big abdomen and uterus. The children are below the average weight. They are women who possess good muscular development and great endurance.

During the first stage of labor the head is apt to be high in the pelvis; the opening stage is unusually slow. But as soon as the os is dilated and the membranes have ruptured, the head enters the pelvis and anterior rotation takes place. In these cases I never hesitate to give a favorable prognosis. Labor, especially the first stage, is slower than normal, but the women are generally able to deliver themselves.

In the second group, the pelvis is also normal, and the women look strong enough, but their muscular development is not good. They consist largely of so-called *society women*, who feed upon unwholesome and indigestible food: have big livers and small, soft muscles. When called upon to exert themselves, they quickly give out; their offsprings are, as a rule, above the average weight, and have big heads. If in such a woman, the head happens to be in an O. P. position, the case, although not serious, is apt to be a troublesome one.

In these cases I have repeatedly noticed two prominent features, namely, an early rupture of the membranes, and labor pains excessively painful for the small amount of work accomplished. The os opens slowly, and when nearly fully dilated, only a margin remaining, the woman's strength gives out, the pains stop entirely, and, as such women may be unable to deliver themselves, aid is frequently indicated.

There is still a third group in which O. P. positions are frequent, but this type is rare and the position of the head is of subordinate importance. I refer to women who have a kyphotic pelvis. It has been observed that the O. P. position is present in about 35 per cent. The head easily passes the large antero-posterior diameter of the brim, but

then encounters the prominent spines of the ischial bones, which not only prevent anterior rotation, but tend to direct the occiput towards the hollow of the sacrum.

In the management of these cases, the position of the occiput is of secondary importance; they usually demand operative interference anyway, no matter in what position the head is found.

To again return to the first two groups, I must explain how it is that in the one class delivery is generally normal, while in the second group labor is apt to be slow and protracted.

The head which has entered the pelvic cavity in the O. P. position, has a tendency to rotate forwards, but this rotation must be aided by strong contraction of the uterine and abdominal muscles. The woman who has thoroughly developed muscles and staying powers accomplishes this with ease, while those with big livers and small muscles become prematurely exhausted. I have no doubt that many of these women would, but for obstetrical aid, die undelivered, in spite of the fact that obstetrical text-books class O. P. position among the normal presentations. The statistics, upon which the authors of these books rely, are based on observations made in large lying-in hospitals, but there is a vast difference between hospital cases and those met with in private practice.

Thus it may be seen that the management of O. P. cases depends mainly upon what kind of a woman one is attending; whether it is a woman steeled against pain, hardened to endure fatigue, and able to perform work, or those frail hot-house plants, in whom pain and exertion soon produce the woe-begone picture of absolute demoralization.

Remembering this, what then is

the safest method of management?

All authors are agreed upon the fact that the O. P. position has a tendency to convert itself into an occiput anterior: it is therefore my rule to always wait and see what nature will accomplish. We could perform many unnecessary operations if we endeavored in every case to change a posterior into an anterior occiput presentation.

Intra-uterine interference is never free from danger, no matter how scrupulously antiseptics is carried out, and the child is apt to perish by disturbing the placental circulation or from tightening of the cord, which may happen to encircle the neck.

Nature can be aided to rotate the head anteriorly, by placing the woman upon the side where the occiput is situated, as this increases the flexion of the head, which is very desirable. Another good and at the same time safe method, is to introduce two fingers in the vagina and rotate the head anteriorly.

If we have waited a reasonable time, after the os is dilated, and the head does not advance, and if pulse, temperature and character of pains denote approaching exhaustion, then it is our duty to interfere and complete delivery.

Many accoucheurs fear to apply the forceps to the posterior occiput and advise first to rotate the head anteriorly. I must confess that I have frequently failed in this manœuvre; this is easy enough when the head is not fixed in the pelvis, but then the forceps are rarely indicated.

If the forceps traction is made in the right direction, the delivery of the posterior occiput is not difficult and does not mean a deeply lacerated perineum.

The delay in occiput-posterior

cases is due to the fact that the head snugly fits into the hollow of the sacrum and because the uterine contractions force the head, not under the pubic arch, but towards the rectum. This is to my mind the explanation of those deep lacerations of the perineum, which are apt to occur in O. P. positions, and not the fact that the occipito-frontal instead of the sub-occipito bregmatic diameter passes the vulva.

If this is admitted, it must be clear that any attempt to deliver the head by downward traction would be in opposition to every law of mechanics.

By making downward traction we endeavor to deliver the head through the rectum, which cannot be accomplished until the whole pelvic floor is destroyed. This is not a theoretical deduction, for it can be demonstrated upon the manikin with a still-born child.

In the mechanism of labor in O. P. positions the upper portion of the frontal bone becomes fixed under the pubic arch; then the occiput passes over the perineum, while the sinciput is strongly flexed, and the face is born last through extension of the head. This mechanism must be imitated in the delivery by forceps.

It is best accomplished by making the first forceps traction in a horizontal direction (with possibly a slight downward inclination), until the large fontanelle can be felt under the pubic arch. The next position is the so-called third; that is, the handles of the instrument are gradually raised to deliver the occiput, and when this is accomplished the birth of the face follows easily upon a depression of the forceps into the first position.

I have in this way delivered quite a number of O. P. cases, and find that it requires less force than the

method usually employed, and that deep tears are the exception instead of the rule.

It is dangerous to attempt anterior rotation with the forceps: this should be evident to everybody, yet we find it sometimes recommended. Again the manikin easily demonstrates that it is a dangerous and unscientific method.

Briefly recapitulating my views upon and experience with O. P. positions, I find it advisable to divide these cases into two groups: those having a large pelvis, strong muscular development and endurance, and small children, and a second group, with small undeveloped muscles, deficient enduring power, and large children.

Anterior rotation of O. P. positions demands strong pains and active assistance of the abdominal muscles. In women with insufficient staying-power, anterior rotation frequently does not occur.

It is impossible to predict during the first stage of labor whether anterior rotation will occur or not. To avoid unnecessary operating, I wait until the woman has demonstrated her inability to deliver herself. If this becomes evident, I deliver with the forceps without rotating the head anteriorly.

The forceps traction should be successively in the second, third and first positions. To attempt the fixing of the frontal bone under the pelvis by making downward traction is mechanically wrong, requires additional force, and usually causes deep lacerations of the perineum. To better illustrate the different types and conditions, I desire to report a few typical cases.

CASE I.—My friend, Dr. E. Baruch, requested me to see a multipara, who had been in labor twenty-four hours. Her previous eight confinements were

rapid and normal. The woman was of large frame, with strong well-developed muscles. She was used to hard work. She complained that her pains were of a peculiar character; they were frequent, painful, but of short duration. An examination revealed an os about the size of a silver dollar, soft and dilatable. Head in the inlet, occiput toward the sacrum. I predicted a slow labor, but advised against interference. The woman remained in the same condition for eighteen hours, when I saw her again. There had been very little progress, but the pains were now stronger and of longer duration. The head was still to the rear.

I again counseled waiting, as I believed the head would rotate. My prediction came true. Forty minutes later the membranes ruptured, followed immediately by the head in O. A. position.

I might be criticised for allowing a woman to lie in labor for two days without giving aid. But I consider the length of time elapsed or the desire to be through with a case insufficient indications for serious operations; and I class the application of high forceps among the most difficult and dangerous obstetrical operations.

CASE II.—My friend Dr. Manges, asked me to see a woman who gave the following history: Membranes had ruptured eleven days before the onset of labor pains. Pains had been present for nearly three days. Stomach intolerant to food for twenty-four hours. Temperature 101 1-2; pulse 110; os, size of a silver dollar; margins rigid; head in the O. P. position; well engaged fetal heart sounds normal.

After emptying the bladder, waited for three hours, during which time, in spite of good pains, no progress was made. The woman's condition demanded immediate delivery.

The forceps were applied through the incompletely dilated os, but as the cervix impeded the descent of the head, incisions became necessary. The delivery of the large un moulded head through the unprepared part was exceedingly difficult, and I had little hope of delivering a living child, but was finally successful.

The perineum was not torn, but owing to the long continued dry labor, considerable sloughing took place, which necessitated a secondary perineorrhaphy.

The woman belonged to the large class of females to whom work, except in the form of dancing, is unknown.

CASE III.—Dr. Harris was called to see a multipara who had been in labor three days. History of several normal confinements. A midwife had been in attendance, but she had left the woman to her fate six hours before the doctor's arrival. Finding a very serious case, he called me to see the patient. *Status presens*. Patient, Jewess, about forty-five years old. Semi-conscious. Temperature 104 3-4°. Pulse very rapid and hardly perceptible. Abdomen painful. In the upper zone of the uterus tympanitic resonance. Fœtal heart sounds absent. From the vagina a bloody and stinking discharge. Pelvis normal, os widely dilated, margins soft. O. P. position, head in the cavity. Labor pains had entirely ceased.

There was no question but that the only chance of saving the apparently moribund woman was immediate delivery. She was therefore chloroformed and craniotomy performed. The delivery of the child was very easy; it was followed by an escape of a large quantity of stinking gas. There was some post partum hæmorrhage and the woman died one hour after the delivery, in spite of active stimulation.

This woman's death was clearly due to criminal mismanagement. Both she and the child could have been saved, if she had been delivered a day or two sooner.

I was at first inclined to bring this case to the notice of the authorities, but I knew the ultimate result: loss of time, and undesirable newspaper notoriety, and acquittal of the culprit.

Who deserves the blame for this woman's death; the ignorant midwife or our lawmakers, who permit everyone and all, no matter what their status of morals or intelligence, to practice obstetrics in the State of New York?

About three years ago I pointed out that the mortality of child-birth and the percentage of still births are twice as high in New York than in Berlin, and other continental cities, where the practice of obstetrics is in intelligent hands. It is a surprise to many when I inform them that one-half of the confinements in this city are attended by midwives: by women who are under no supervision and from whom the powerful city government exacts as sole demonstration of fitness, the ability to pay fifty cents into the city treasury.

Is it not mockery that physicians pride themselves about their increased knowledge in obstetrical art, when the majestic law stamps them as a unit with that horde of so-called midwives, the large majority of whom are immoral and unintelligent creatures?

Here is a chance for our medical colleges to assert their powerful influence!

Does it not seem strange that at the end of the nineteenth century, plumbers, steamfitters, and engineers must give satisfactory evidence of fitness before a licence is issued, while so-called obstetricians (midwives) are under no restriction?

CASE IV.—Mrs. R., aged twenty-two years, a large fleshy woman, very nervous; membranes ruptured before onset of labor pains. Pelvis normal. O. P. position. After being in labor for thirty hours, the os was still incompletely dilated. The pains became feeble, and the woman showed symptoms of approaching exhaustion. Forceps delivery of the O. P. head; no laceration of the perineum; normal puerperium.

I have a number of similar histories in my case book, only the names differ; they are not rare and not serious if properly managed; but a too early or too late interference may result in the gravest consequences.

In closing, I wish to say that it is not the purpose of this paper to present new thoughts, or to deal with the subject exhaustively; I have only wanted to describe my own views of, and experience with, O. P. positions. I am well aware that many estimable authors vary with me on many points, but as this method of management is certainly safe and has been very successful in my hands, I consider it my duty to recommend it to others.—*The New York Policlinic*, Jan., 1896.

RUPTURE OF SAC AND DEATH OF FŒTUS IN ABDOMINAL PREGNANCY AT FULL TERM. IMMEDIATE OPERATION WITH RECOVERY. By J. B. EAGLESON, M.D.

The following case of abdominal pregnancy is reported, as it presents some points of interest which are different from the few cases of this kind previously recorded:

Mrs. B., is thirty-six years of age, and American born from German parentage. She is of slender build and rather under medium height. She was married at eighteen and has a daughter aged seventeen. At the

birth of the daughter both cervix and perineum were severely lacerated, causing her considerable trouble until they were operated on some five years later. After the repair of the laceration she enjoyed excellent health, with regular menstruation, until the beginning of this pregnancy. She menstruated last on March 21, 1894, but as the flow at that time was of short duration and very scanty, it is probable that the pregnancy really began one month earlier. With the exception of the morning sickness, her health continued quite good until May 13, when she had severe uterine and abdominal pains accompanied by profuse hæmorrhage, which continued for four or five days. During this flow a membranous cast of the uterus was expelled and the attending physician thought that she had aborted, and that the fœtus had escaped notice. At this time there was quite well-marked tenderness over the right ovarian region. She improved in general health and was quite free from pains for three weeks, when they returned on the right side, being more acute in character than during the previous attack, but unaccompanied by hæmorrhage. The temperature was but slightly elevated. A bimannual examination revealed an enlargement to the right of the uterus, which was variously diagnosed as a cyst, an hæmatocele and a malignant growth. The severe symptoms subsided after a few days, but slight attacks of pain returned at frequent intervals during the summer. About the middle of July she began to feel what she thought to be a fetal motion, and the husband, who is a retired physician, concluded that they must have been mistaken about the occurrence of the abortion in May. Later on he was able to feel distinct movements of the child, and could at times make out the extremities

through the thin abdominal wall. He also felt confident of having heard the fetal heart on one occasion. She was fairly comfortable, with the exception of occasional attacks of pain during the latter part of summer and autumn. Some tenderness remained on the right side, and during the last few months she was not able to sleep on that side. The child always occupied a position on the extreme right and low down in the abdominal cavity.

I was first called to see her on the afternoon of Nov. 11, 1894, and found her suffering from quite sharp pains, which had been gradually increasing for several days. An examination revealed a small cervix situated high up against the sacrum almost out of reach of the finger, and the child was in a transverse position to the right of the median line. As the os had not begun to dilate I concluded that the pains were probably false, and gave her a 1-4 grain of sulphate of morphine hypodermically in order to give her some rest, she having slept but little during the previous night, and advised its repetition sufficiently often to keep the pains in check, thinking that the position might right itself if she went to full term, since I had been informed that she was but about eight months pregnant at this time. The husband stated that he had found some albumin in the urine the day before, and I found a sample sent to me later in the evening to be very dark colored and to contain about 50 per cent. of albumin by volume. The feet and legs were considerably swollen, especially the left one. Milk diet and Basham's mixture were advised. I did not see her again until the next evening. She slept some during the night and had been comparatively free from pain during the day. The patient remarked that she had not

felt motion for several days and feared that she would have a still-birth. While I was examining for the fetal heart with the stethoscope she went into a very hard convulsion, which was checked by chloroform inhalation, and while she was under the anæsthetic I again made a careful examination, but did not succeed in finding the fetal heart.

Realizing that the case was a serious one, a consultant was sent for, but before his arrival she had a second convulsion, and then a third during his examination. At this time the abdomen was very tender and quite tympanitic. The temperature was 101.2 with a pulse of small volume at 112. It was decided that rapid dilatation and immediate delivery was imperative. Under complete anæsthesia, my hand was introduced into the vagina and the cervix dilated, but much to my surprise I found my finger in the cavity of an empty uterus scarcely above normal size. It was now evident that we had to deal with an extra-uterine foetation. Owing to the uremic convulsions and commencing peritonitis it was decided to operate at once, and she was removed to Providence Hospital, where we operated two hours later. I made a median incision and came down upon a large placental mass just above the bladder. The sac was not adherent to the abdominal wall, but had ruptured and the fluid part of the contents had escaped into the abdominal cavity, setting up a mild general peritonitis. After a careful search the opening in the sac was found on the left side of the placenta. On introducing the fingers into this the feet were at once reached, and by enlarging the opening the child was extracted through it. The position of the child was on the patient's right, with its right side toward the right, the legs extended across the

abdomen and head turned extremely to the left and pushed up under the right lobe of the liver. It had been dead several days, as the cord was somewhat shriveled and the skin was macerated. It was a well-formed female child weighing six and three-quarters pounds. There were no adhesions of the sac to the abdominal wall and but few to the intestines, which with two or three exceptions were easily peeled off without the use of ligatures. The placenta was quite firmly attached to the top and posterior surface of the uterus, and to the right broad ligament. But few vessels had to be tied. The principal nutrient vessel of the placenta, which was almost the size of a lead pencil, came from the under surface of the mesentery of the ileum. But a small quantity of blood was lost during the operation. The peritoneal surfaces presented evidences of commencing inflammation.

The abdominal cavity was thoroughly washed with hot boiled water until it came away perfectly clear. A large glass tube was inserted down into the cul-de-sac in the center of a gauze drain. The abdominal wound was closed by kangaroo tendon sutures for the peritoneum and fascia, with silkworm gut for the deep sutures through entire thickness of the parietes.

The patient was stimulated by rectal enemas of hot beef tea and whisky, with digitalin and strychnia, and by morning she had rallied from the shock nicely. The glass tube was removed on the second day and the gauze drain the fourth day, after which the wound united by first intention and the recovery was uninterrupted. The day following the operation the urine contained 75 per cent. of albumin by volume, but this gradually diminished until there is now but a slight trace present.

There were no more uremic convulsions after the operation.—*Journal of the American Medical Association*, Feb. 22, 1896.

DIFFUSE SEPTIC PERITONITIS. By A. M. CARTLEDGE, M.D.

Diffuse septic peritonitis of Mikulicz, general septic peritonitis, and peritonitis mykotica are synonymous terms to express a pathological lesion characterized by a more or less sudden and profound impression on the peritoneal sac, followed by a rapidly extending inflammation, with no tendency to limitation or to become circumscribed. The formation of fibrinous deposits either does not occur or are liquefied by the action of pathogenic bacteria and ptomaines. Pathogenic bacteria have been constantly found present in this form of peritonitis, the colon bacillus predominating. Where the ordinary pathogenic bacteria, the staphylococcus and streptococcus pyogenes have been found, the presence can generally be traced to diffuse peritonitis springing from some local or circumscribed inflammation which was excited by and contained these organisms. This inference is based upon the knowledge that pure cultures of the ordinarily harmless colon bacillus brought into contact with injured or diseased peritoneum, at once displays most intense pathogenic qualities and is capable alone and unmixed of producing rapidly fatal peritonitis: indeed, so acutely fatal is the inflammation from this source of infection that there is not time in most cases for the development of a secondary infection in the wake of the pathologic field.

A diffuse septic peritonitis may be such from the beginning, as when septic matter is introduced into the sac, as in a filthy knife wound or a

ruptured bowel from trauma or gunshot wound, in which fecal matter is poured into the undefiled peritoneum; and again, and most frequently, it is secondary to a pre-existing circumscribed or local peritonitis, in which the infected contents of such local inflammations have been suddenly poured upon this great lymph sac. Lastly, the source of infection may be immediate both from without and from within, as when a septic knife blade enters the peritoneal cavity laden with sufficient septic material from without to cause a fatal diffuse inflammation and further wounds the intestine, which in turn pours from within sufficient (though probably differing bacterially) septic material to insure a diffuse septic peritonitis.

Whatever be its origin, the symptoms, though varying in intensity, are uniform and well marked, and the termination of the disease is characterized by fewer variations than any other we are acquainted with.

The life-history of diffuse septic peritonitis is quickly told. A history of abdominal trauma, either accidental or surgical, or intra-abdominal disease, inflammatory or mechanical, producing circulatory changes in some part of the peritoneal contents: sudden severe pain in most cases, not always referable to the point of origin, usually centering around the umbilicus; unmistakable shock in the cases due to the sudden pouring out of septic contents into the free cavity; cold extremities: feeble pulse, at first not accelerated; subnormal temperature. In a few hours, say from four to eight, these cases react and present the classical symptoms which attend all cases, be the cause what it may. What physician has not been a helpless witness of this unconquerable array of symptoms? the pallid face and pinched features; the bright and searching eye, which reveals the

mind intoxicated to a degree of brilliancy beyond the natural: the quick and meaning question; the restless and excited nervous system; the unquenchable thirst. Add to these the objective symptoms: a rapidly ascending, thready pulse, sometimes increasing ten beats to the minute during half an hour's observation; tumefied and uniformly distended abdomen; the destruction of abdominal breathing; the cold surface and extremities; the projectile vomiting—and you have the picture complete of a pathologic lesion that we must believe with Treves has but one termination, and that is death.

Treatment to avail must be early and very radical and thorough. It must be at least partly preventive, for once the disease is established it is beyond the reach of human aid. Nearly all cases when first recognized are beyond the bounds of possible relief. We may hope to lessen the number of cases of diffuse septic peritonitis by early relieving conditions which are prone to give rise to it, but from the dark and gloomy field of its pathology there does not arise a single gleam of light which would cause us to believe it can ever be cured when once established.

The rapid denudation of endothelial surface in this disease, together with the speedy absorption of the products of bacterial growth in luxuriant surroundings, when the disease is once under way, act like the injection of the alkaloid of some pronounced poison in the blood. The cerebral hyperemia with augmented intellect, the nervous agitation, all speak of ptomaine poison from the great peritoneal supply-house. In virulent cases the intestinal coats, including the mucosa of the entire intestinal canal, are congested and rapidly become paretic long before the inflammation could possibly have extended

by continuity to such a vast surface. After devoting considerable study to the subject, the explanation of this seems twofold. It is a well-known fact that a traumatic or septic impression of the peritoneum calls forth the colon bacillus which normally inhabits the intestinal canal, and they have been found by Cornil and other observers penetrating the muscularis prompted by a disturbance upon the peritoneal side of the bowel. In diffuse septic peritonitis this activity of the colon bacillus may extend to the entire intestinal canal as the result of such a pronounced and septic impression at one part as occurs in diffuse septic peritonitis. Again, the absorption and circulation of ptomaines may produce in the intestinal coats, as in the brain and kidneys, first vasomotor dilation and ultimately paresis. For the patient dying of diffuse septic peritonitis usually passes into coma a short time before death.

In concluding this part of my paper it seems pertinent to offer the following deductions from what has been said:

1. Diffuse septic peritonitis is a bacterial disease, the most frequent organism being the colon bacillus.

2. The conditions most commonly productive of the disease are rupture of circumscribed septic accumulations from adjacent or intraperitoneal structures into the fresh and undefiled peritoneum. Such septic inflammatory accumulations are in the order of causative frequency based upon the table of Macagnai's ruptured appendices and appendicular abscesses, typhoid fever, ulcerative enteritis, intestinal perforation, cancer of the colon, hernia, thrombosis of mesenteric vessels, ulceration of gall-bladder. Macagnai's observations evidently did not extend to diseases of the female pelvic organs, or most probably he would have placed rup-

ture of tubal abscesses and suppurative ovarian cysts second in this etiological classification.

3. Diffuse septic peritonitis can usually, even in its inception, be differentiated from circumscribed peritonitis, though the latter be accompanied with marked general disturbance of the abdomen, such as tympanites and pain. The prognosis in the two affections is widely different.

4. Obstruction of the bowels coming on during a severe circumscribed inflammation of the peritoneum is due usually to paresis from adhesion of coils of intestine to each other and to neighboring structures by fibrinous deposits. If not too extensive, careful separation and removal of the cause of local peritonitis will usually terminate in recovery.

5. Obstruction of the bowel in acute diffuse peritonitis is caused by vasomotor paresis of the muscular coats of the bowels, and never by adhesions except at some local point where there was a pre-existing circumscribed peritonitis. Treatment by operative or remedial measures offers no hope of recovery.

6. Diffuse septic peritonitis is always acute and is to be distinguished from circumscribed peritonitis and from fibrinous or adhesive peritonitis, which sometimes follows the injection of a non-septic fluid, as blood, or following the contusions of a trauma. These last are the ones that get well by rest and opium.

7. Our present knowledge, based upon the work of Treves and fortified by the experience of many surgeons, leads us to believe that diffuse septic peritonitis is always fatal, whether subjected to operation or not.

Like every surgeon, who has done abdominal work to any extent, the saddest page in my record book is the one which records the laparotomies performed in the presence and for the

relief of this monster. I shall not report them at length, for the story of one is about the story of all. I append some fatal cases not operated upon, in order that rational comparisons may be made, and in order to prove that my experience has not been different from that of others in dealing with this frightful malady. Had I to treat the cases enumerated below, with my present experience, I should refuse operation in most of them, as I now know they would all have died in any event. Nothing has done so much to bring operations into disrepute, especially in disease of the vermiform appendix, as the operations undertaken in cases hopeless from the beginning. And yet when confronted with these cases in practice, it is not so easy, in the presence of what your knowledge teaches you is certain death, to say that you will make no effort to stay the advance of this dreadful disease, diffuse septic peritonitis. Yet the rational deduction born of experience proves that by operating upon one such hopeless case we probably lead some very easily relieved case to reject operation until it is too late.

CASE I.—Boy, age twenty, fell in an open hatchway; got out without assistance; complained of pain in right inguinal region. He went home and to bed. The family physician was called, and treated him for bruise of side for five days. On the night of fifth day he was seized with violent pain in abdomen, cold extremities, feeble pulse. I saw him fifteen hours later. Pulse 120, thready; abdomen swollen; thoracic breathing; pinched features. Diagnosis not made; probably some serious abdominal lesion. Exploratory laparotomy; median incision. Abdomen filled with pus, loose between the coils of intestine. Necrotic appendix in abscess cavity, which had ruptured

into free cavity. Irrigation; drainage; death in thirty hours.

CASE II.—Boy, age twelve years (Dr. Krim), was struck with a snow-ball two days before. Great pain and shock followed by fever and general peritonitis. When seen was in advanced diffuse septic peritonitis; almost moribund; pulse 150. Median section; pus in free cavity; general diffuse peritonitis. Abdomen closed rapidly after irrigation to get him off table. Death in eight hours. Autopsy by Dr. Weidner: Diffuse septic peritonitis; ancient inflammatory mass in right iliac region; diseased appendix. The appendicular abscess had evidently been ruptured by the ice ball striking it and gave rise to a diffuse peritonitis. Dr. Krim found that the boy had been treated some months before for typhoid fever, which lasted ten days or two weeks.

CASE III.—Boy, age fourteen years, was seized with pain in right side which lasted a day. The pain improved, but abdomen rapidly swelled. Attending physician gave several cathartics during the following forty-eight hours; no response. Diagnosis, intussusception. I saw him on the evening of the third day. Abdomen much distended; vomiting large quantities of green-tinged serum; pulse 140; temperature 98°. Diagnosis, intestinal obstruction. Operation in median line. Diffuse septic peritonitis; lymph flakes, and turbid serum; congested and parietic bowels. Investigation of right iliac region revealed a gangrenous and perforated appendix; no limiting adhesions; no abscess. Death in twelve hours.

CASE IV.—Widow, age thirty-eight (Dr. Stucky), had suffered periodically with pain in right inguinal region; had been treated by various physicians; was seized with intense

pain in right inguinal region while ironing; great shock; abdominal pain. Was seen by Dr. Stucky the following morning; abdominal distension; pinched features; temperature 102° ; pulse rapid. Diagnosis, probably ruptured appendix into free peritoneal cavity. Later in the day she was removed to the infirmary. I saw her at 3 P. M.; concurred in the probable diagnosis. She was manifestly worse than when Dr. Stucky first saw her. Pulse 140; temperature 98° ; extremities cold. Median section at 5 P. M., twenty-four hours after onset of symptoms. General septic peritonitis; lymph flakes; turbid serum; congested intestine. In right side appendix found attached to enlarged right fallopian tube, but sound; the right tube contained a perforation the size of a grain of corn from which leaked a quantity of dirty pea-soup-looking pus into the free peritoneal cavity. Tube removed; irrigation of cavity with gallons of water, and drainage. Death in twelve hours.

CASE V.—Boy, age about fifteen; had an attack of appendicitis two years before the present trouble for which I treated him. As the symptoms at that time were not marked, he was treated by the expectant plan and seemed to recover. The second attack came on after eating rather heartily of pineapple on Saturday night. The pain was right severe at the onset, but was relieved by the administration of morphine and hot applications. As he had gotten over the first attack, I decided to treat him as then. The second day he seemed to be doing fairly well; pain had diminished; temperature was about 102° . He rested very well the early part of Sunday night, but was seized with severe pain about 5 o'clock Monday morning. The pulse rapidly ascended and the abdomen

began to distend. An anxious expression developed, and all symptoms of a diffuse septic peritonitis appeared. An operation was deemed the only hope for recovery. Operation in right semi-lunaris; no adhesions; lymph flakes and curdy pus about appendix, which was enormously enlarged and perforated. Appendix was in a partial state of gangrene. Cleansing and drainage by gauze. This little fellow made a wonderful struggle against the advances of so septic an inflammation, and at one time, some twelve hours after the operation, looked as if he would recover; but the distension returned, and death terminated in the usual way from septic infection and intestinal paresis.

CASE VI.—Man, age about thirty-eight years, patient of Dr. Ritter. This man had a history of repeated attacks of intestinal colic and soreness. Was seized with pain in abdomen; went to a physician's office and was prescribed for. Was no better next day; complained of soreness in abdomen; slight swelling; temperature 102° . Dr. Ritter gave him a cathartic. Thursday he was much worse; cathartic had not acted; vomiting; more abdominal distension; suspected intestinal obstruction. I saw him with Dr. Ritter at 4 P. M. end of second day. He had grown rapidly worse since the last visit; extremities cold; temperature 99° ; pulse 120; vomiting frequently large quantities of green-tinged serum; great thirst; little pain; abdomen too much distended to localize trouble. Diagnosis, either organic intestinal trouble or rupture of appendix. If the former, a chance for life; if the latter, none. Operation—median incision; general septic peritonitis; gangrenous and ruptured appendix. Death in eight hours.

CASE VII.—Dr. Hamilton was

called: he diagnosed appendicitis, with abscess. Immediate cause of my being called was that the fever had subsided, but abdominal distension was greater and pulse faster. His temperature was 98° when I saw him, and he was more comfortable than at any time during six days. His pulse, however, was 120 and thready, and distension was rapidly increasing. Diagnosis easy, rupture of an appendicular abscess into the general peritoneal cavity. Operation: beginning diffuse septic peritonitis from a ruptured appendicular abscess. I thought this man had a chance, but he died in two days.

These do not represent all the cases of diffuse septic peritonitis I have operated for. I have operated upon and lost as many more arising from gunshots of the abdomen, strangulated hernia, intestinal obstruction, etc. One point prominent is that every case of laparotomy that I have done, where diffuse septic peritonitis existed, it matters not from what cause, died. In this connection I will here report some cases which strikingly resemble those detailed, and in which no operation was done, and they died also.

CASE I.—The wife of a dentist, forty-five years of age; history of repeated attacks of jaundice. Seized with severe pain in abdomen, vomiting, and purging: was treated a few days, but rapidly grew worse: abdominal distension increased: died at end of fourth day. *Post-mortem* revealed abdomen filled with pus and large appendicular abscess ruptured into general cavity.

CASE II.—Man, forty years of age: history of repeated attacks of colic. He was a perfect type of physical development: went out to a party one evening: was seized with severe pain in the right side. Next day at noon abdomen was rapidly

swelling: developed pinched features, rapid pulse, and died at end of third day. The inference is that he died of a ruptured appendicular abscess.

CASE III.—A boy, seen with Dr. Allen. He had a well-defined appendicular abscess which on the fifth day ruptured. He developed general peritonitis, and died after five days.

CASE IV.—Was seen on St. Catherine Street with Dr. Pelle. Rupture of appendicular abscess took place on the third day. It seemed to be a case that would get well, and the doctor had discharged her.

CASE V.—I went forty miles out in the country to see a physician's son. This boy had been stacking hay and a storm came up. In his anxiety to get off the hay stack he fell and hurt his hip it was thought. The doctor examined his hip, but could find nothing wrong with it. After three or four days he developed fever and swelling of the abdomen. When I saw him he was hopelessly in general peritonitis. On questioning the boy I got a clear history of repeated attacks of appendicular colic.

Again, these do not represent all the cases of diffuse septic peritonitis not operated upon which I have observed to die. There are probably as many more from trauma, hernia, intestinal obstruction, etc. In all I have attended about thirty cases of diffuse septic peritonitis. Of this number about fifteen were operated upon in the hope of relieving the condition upon which they depended, but without avail.—*American Practitioner and News*, March 21, 1896.

DIGITAL EXPLORATION IN MIDWIFERY.

Crouzat (*Rev. Obstét. Internat.*, October 21, 1895.) does not agree with certain German obstetricians

who would discard digital exploration in normal labor, relying on abdominal palpation. The diagnosis of normality may demand the introduction of the finger into the vagina. Cronzat's principles simplify digital exploration and guard against its dangers. Vaginal examination, he thinks, should be made as seldom as possible. One exploration at the beginning of labor and another immediately after the rupture of the membranes are usually sufficient. His practice is to make the external parts antiseptic; then the hands and forearms are washed and brushed thoroughly. The nails must be specially attended to. The washing is afterward repeated in a 1 in 1,000 solution of sublimate. Great care in the introduction of the forefinger is strongly advocated. It should be dipped in sublimated vaseline and guarded by the thumb and the other fingers while the hand is passed under the clothes and near the patient's thighs. On reaching the perineum the labia are parted by the thumb and middle finger. The forefinger is lastly introduced into the vagina without having touched any part of the patient or her clothes since the instant it was made aseptic.—*British Medical Journal*.

ENDOMETRITIS. By J. H. REESOR, M. D.

In the treatment of endometritis or corporal endometritis, we would ask the questions:

1. Is it safe or advantageous to make intra-uterine medication?
2. If so, what curative agents shall we employ?
3. How shall they be applied?

Turning to the text-books or the current literature on the subject in search of an answer to the first question, I find the greatest diversity of

opinion. The pioneer gynecologists of Europe, such as Jobert, Bennet, and Simpson, rarely if ever made applications beyond the os internum, believing that endometritis could be cured by treating the cervix and cervical canal. On the other hand we find that Aran, Gautillon, and Dr. Henry Miller (who, by the way, was the first to employ intra-uterine medication in this country), Kemmerer, Nott, and many others, relied to a very great extent on intra-uterine applications for the relief of corporal endometritis. All that can be learned from a review of the literature is that intra-uterine medication is more extensively employed than formerly. Believing that time tends to drift the profession to the side of correct therapeutics, it may be inferred that local applications to a part or a whole of the lining membrane of the uterine cavity are sometimes necessary, if not indispensable, in treating endometritis.

In seeking an answer to the second question, we encounter a variety of medical agents, ranging from the actual cantery to the blandest anodynes. Bearing in mind, however, that the second object to be gained, mainly to restore the organ to health and leave it uninjured, it is evident that all destructive agents should be avoided. Owing to the risk in making applications to the mucous membrane of the body of the uterus, intra-uterine applications, except to the cervical canal, should not be used until other means have been thoroughly tried and have failed.

In answer to the third question, we only have to say that the easiest and most effectual way of making applications to the body of the uterus is through Skeen's instillation tube.

The method generally in use of dipping a probe wrapped with cotton into the solution to be used, and pass-

ing that up into the canal, is very unsatisfactory. The cotton on the probe may injure the mucous membrane and the solution is desposited about the os externum, very little if any getting into the canal.

When from long continued congestion the mucous membrane of the cavity of the uterus becomes hypertrophied, giving rise to that condition known as endometritis-polyposa, the use of the curette gives the most prompt relief.

We can better express our views as to the operation of curetting by reporting a case:

Mrs. D., aged thirty-eight, mother of four children, youngest three years. Previous health good up to seven months prior to the time I was consulted. I found the patient very pale, weak, and anemic, with a history that some ten months previous her menstruation became irregular, coming on at the end of two or three weeks and continuing longer than normal, and was too free. At times the hemorrhage was so profuse that she was compelled to remain in bed during the period. On examination I found the uterus abnormally large, the increase in size being mostly of the body and fundus.

Speculum examination revealed os externum somewhat dilated, with a dark discharge coming from the canal. Sound entered two and a half inches, and could be moved about considerably in the cavity of the body, showing that the cavity was enlarged.

I first put my patient on Haydin's viburnum compound with ergot and a general tonic. Also made applications of carbolic acid and iodine to external os once a week, with hot water douche night and morning. This treatment was kept up for two months with some improvement of general health, but very little im-

provement in the profuse menstruation.

I then passed a medium-sized curette into the uterus and gently curetted the entire mucous membrane of the body. This brought away a considerable quantity of serum and fungous material, with several shreds, which looked like portions of the epithelial layer of the softer membrane. I then passed a pencil of cocoa-butter and iodoform well up into the body of the uterus. Kept up tonic treatment. Her next period came on at proper time, but was yet too free. Five days after the flood had ceased I again curetted as before, removing some more fungous material. After the second operation with tonic treatment and the application of carbolic acid and iodoform to os externum, once a week for five weeks, the patient made a very good recovery.

CLEAN MIDWIFERY, WITH REPORT OF A CASE OF UNCLEAN MIDWIFERY.

By clean midwifery is meant midwifery not encumbered with anything useless—perfect, complete.

Its principles are simple, its practice easy, requiring the virtues, perseverance, patience, thoroughness. Its results are too well known to dwell upon, depriving child-birth of much of its former horror, robbing death of many of its fairest victims, women in the prime of life performing their office of mother and helpmate, the time of all times at which they could at least be spared.

History: This dates from the time when the true pathology of diseases of the puerperium was first properly appreciated, which was the keynote to their prevention and successful treatment. In the time of Hippocrates and Galen the results of

unclean midwifery were thought to be due to the suppression of the lochia, this doctrine holding sway for about twenty centuries. This was followed by the doctrine of milk-metastasis. These in turn were followed by the doctrines of inflammation of the womb, peritoneum, veins and lymphatics. Many considered it a specific infectious disease, such as typhoid fever. In 1850 Sir J. Y. Simpson published a paper entitled "The Analogy Between Puerperal and Surgical Fever," which was the beginning of the modern doctrine. Several years previous to this Semmelweis asserted that puerperal troubles were common in the practice of those who examined patients after performing post-mortem, or students attending patients while working in the dissecting room. He was considered a crank, and was rewarded by ridicule, but with the advance in other branches of medical science, this branch has also advanced, and to-day it is an established fact that puerperal diseases are due to germs, either putrefactive or infective. The putrefactive germs are termed bacilli, and depend for nourishment upon some foreign proteid substance, such as blood-clots, pieces of membrane, etc.

Their excreta are called ptomaines, which are capable of absorption by the uterus and are the offending agents. Puerperal troubles due to this cause readily respond to treatment, because as soon as the uterine is cleaned out the supply of ptomaines ceases, and the organism, with its wonderful eliminating glands, soon disposes of the dose it has. The infective germs are termed streptococci; these possess the power of invading living tissue, and are in themselves poisonous. This germ is the cause of the true infective puerperal fever, although the putrefactive germs are

found with it. These germs must get into the system before they can cause trouble. Their avenues of introduction are seven in number:

1. The genital passages, as by an examination with a septic finger, filthy clothes coming in contact with the vulva, or by the patient scratching her vulva with a septic finger: it has been said that the water-closet has acted as a source of infection by the mucous membrane of the vulva coming in contact with the foul emanations from the sewer.

2. Wounds of the genital passages.

- (a) Lacerations of cervix.

- (b) Lacerations of vagina; the base of the clitoris is a favorite place for laceration.

- (c) The perineum.

- (d) The head lying in one position too long may cause sloughing of the underlying tissue.

3. The bladder, either introduced by a catheter, or may wander from the vagina; from the bladder they may wander through the ureter into the kidneys.

4. The rectum, as by a septic syringe nozzle.

5. The breast.

6. Respiratory organs.

7. Intestinal canal.

Having seen that there is a germ capable of introduction by the above-named avenues, and knowing the dire results which follow its introduction into the system, it became evident that if the germs were prevented from entering the system the puerperium would be robbed of its dangers. As we all know, this has been demonstrated by clinical facts. The prevention comprises clean midwifery, which involves three factors—the patient, physician or nurse, and the surroundings. The surroundings necessarily depend upon circumstances. It is those in the middle

and lower walks of life whose surroundings we must modify. As to the room, it should not be too small; it should be exposed to sunlight, if possible, and be well ventilated. If the bed has been in use long, it should be scrubbed up and sunned. A mattress should be used and all unnecessary clothes, ornaments and furniture should be moved out. For a bed-protector there is nothing better than a piece of oil-cloth, or a piece of canvas which has previously been boiled. The bed linen is put on fresh, and then the bed is ready for the patient.

As to the patient, she should take a thorough bath with warm water and soap. She should have a copious enema of warm water and soap. The vagina should be douched with a 1 to 2000 bichloride solution. She should clean and cut her finger-nails, and when the physician has prepared his antiseptic solution she should soak her hands. She should put on fresh linen: after this an antiseptic pad should be placed over the vulva: one may easily be made by wrapping a piece of absorbent cotton or oakum in sterilized gauze, and the breasts and axillæ, after a thorough scrubbing with a boric acid solution, are to be covered with borated cotton, kept in place by a sterilized binder.

As to the physician, his hands and arms should be prepared as follows: Nails cut and cleaned, hands and arms scrubbed by means of a brush with hot water and soft-soap, then washed in plain water, next immersed in a hot bichloride solution, 1 to 2000, in which they should remain for three minutes: if they are simply rinsed it does not wet the several layers of dry, horny scales which form the stratum corneum of the epidermis, beneath which the germs may hide and remain unhurt. The hands should be allowed to dry—never use a towel: next they should

be immersed in a 5 per cent. solution of creolin, remaining for one minute. This is antiseptic and lubricant: in the lying-in hospital of the University of Maryland the rules relating to the time were very strictly observed. Some claim that it is unnecessary to use bichloride, soap and water being sufficient, but for the busy practitioner, who makes, possibly, a rectal and vaginal examination of one patient, lances a felon for another, is then summoned to a case of labor, for the benefit of his patient he should use bichloride. I mention bichloride because it is the neatest, least troublesome and among the best antiseptics. An apron should always be worn, pinned to which should be a sublimated towel, which is useful. In this connection it is well to remember that failure to carry out the minutest details in antiseptics may lead to disasters of the greatest magnitude. Remember the old expression, "*omnia ex oro*." Vaginal examinations should be as few as possible. The third stage of labor should be carefully managed or clean midwifery may fail. In those cases where it becomes necessary to separate the placenta from its attachment or in any way interfere with its delivery, it should be carefully examined to see if any part has been left. At the end of the third stage a hypodermic of strychnine-nitrate, one-fortieth of a grain, should be given and a dose of ergotole or fluid extract of ergot.

The strychnine tones up the muscles, acts as a general stimulant and lessens the shock which necessarily follows labor. Ergotole insures better contraction of the uterus, thereby forcing out all clots which otherwise might be retained and become infected. This is more important in multiparæ, as with each succeeding labor the uterus becomes

more inert. During the interval between the second and third state of labor sterilized gauze, wet with an antiseptic solution, should be kept over the vulva. After a normal labor it is unnecessary to use an antiseptic douche, as the placenta wipes out the canal, and this is followed by a douche of blood from above.

Nature's Antiseptic Fluid.—In many cases in which the strictest antiseptic precautions have been observed we will have fever, temperature 100 deg., but it will be noted that the patient is cheerful and does not feel sick; this is Volkman's aseptic fever, due to the absorption of blood serum. The nurse should prepare her hands just as the physician, except the creolin solution; this should be done each morning before making the patient's toilet, and if she has occasion to touch the cord she should be careful not to hand the mother a cloth before cleansing her hands, or otherwise convey germs to her.

Van Horn and Ellison, Park Avenue, Forty-first street, New York, prepare an obstetric case which constitutes a valuable armamentarium; it consists of 2 sterilized bed sheets, 4 dozen sterilized vulva pads, 1 4-quart douche bag, with glass nozzle, 1 zinc douche pan, 2 sterilized mull binders, heavy, 5 yards sterilized gauze, 1 yard 10 per cent. iodoform gauze, 2 3-inch heavy mull bandages, sterilized, 1 pound sterilized absorbent cotton, 1 sterilized nail brush, 2 1-2 inch papier mâché basins, rubber sheeting 1 1-4 yards by 2 yards, rubber sheeting 1 1-4 yards square, rubber on both sides, safety pins, 2 ounces carb. vaseline, 4 ounces powdered boric acid, 4 ounces 50 per cent. carbolic acid solution, 2 ounces green soap solution, 2-100 grms. chloroform, 1 ounce f. e. ergot, 1 small bottle

bichloride tablets, 1 small bottle sterilized tape.

The physician should always see that the breasts are properly cared for during the last weeks of pregnancy, the nipples should be washed in a solution to harden them. Listerine and alcohol, equal parts, answers the purpose; gently drawing them each day also prepares them. Mammary inflammation is preceded by infection of the nipples, as a fissure or excoriation of the nipple; this can be prevented by keeping the nipples clean, using a weak solution of boric acid just before and after nursing. Attention to the cord also comes in the domain of clean midwifery. I always treat it as if it were the stump of an arm I had amputated. Wash it off with plain water, then dust with iodoform and put on iodoform gauze, 10 per cent., over this a piece of bo-rated cotton, then the bandage. This need not be opened in four days. Equal parts of acetanilide and boracic acid and carbolic gauze would probably do as well, and be more pleasant to those around.

A Case of Unclean Midwifery.—The majority of troubles after childbirth at the present time, we might say, are caused *directly* by the ignorant granny of today, about which enough has been written, and *indirectly* by germs. For this reason the young physician is called upon to treat most of the unclean midwifery, as his practice is largely among those who are dependent for treatment upon midwives.

CASE.—Mrs. C., American, married, aged thirty-two years, was delivered of her fifth child, a boy, weighing about seven pounds, December 3, 1894, after a short and normal labor—a midwife officiating. On December 6 says "she had a chill, but no pain." December 7 chill and

general pain. I was called in December 8—respiration 28, pulse 140, temperature 105° deg., countenance very anxious, vomiting frequently, complete anorexia, tongue heavily coated, tympany marked, tenderness over abdomen, offensive diarrhoea.

Treatment.—No anæsthetic given. She was put on a table, the external genitalia and surrounding parts were scrubbed with pearline, the vagina washed out with a 1 to 2000 solution of bichloride. The instrument having been sterilized, the patient being on her back, an Edebold's speculum was introduced (this is preferable for this class of work, as it is self-retaining); the uterus pulled gently down with a Skene's tenaculum, the entire inner surface carefully scraped with a curette: a small quantity of decomposing blood clots was scraped out; involution had not begun, and the organ was very tender. An intra-uterine douche of 1 to 3000 bichloride solution was given, continuing until the solution came away clear. Then the cavity was packed lightly with iodoform gauze, 10 per cent.

I think this a very important part of the treatment. It acts as (*a*) drainage tube: (*b*) hæmostatic: (*c*) stimulant—it stimulates the uterus, causing contraction, thereby promoting involution—(*d*) it is a good mode of applying a reliable antiseptic to the uterine cavity: (*e*) if there is a pus-producing surface at the late placental site, by its antiseptic and stimulating properties it sets up healthy action; (*f*) it aids in the production of a hasty convalescence: (*g*) it prevents endometritis, salpingitis, ovaritis, uterine displacements, metrorrhœa, etc., from following in after life.

The introduction of the gauze is greatly facilitated by the use of Polk's applying speculum. By its use the irrigation is better done.

The vagina was then washed out with bichloride solution, 1 to 2000, and packed with iodoform gauze and an antiseptic pad applied to the vulva. While the treatment was being carried out the bed clothes were changed, all unnecessary furniture and clothes were removed and one quart Platt's chlorides sprinkled around.

December 9, respiration 23, pulse 90, temperature 99° deg., elixir iron, quinine and strychnine ordered three times a day, with milk punches.

December 10, respiration 22, pulse 84, temperature 98; vaginal gauze removed and fresh introduced.

December 11, respiration 22, pulse 80, temperature 99; vaginal and uterine gauze removed and a carbolicized douche given and antiseptic pad reapplied. Recovery continued uninterrupted.

Other cases illustrative of this plan of treatment might be reported, but I deem this sufficient.

WOMEN AND THE BICYCLE.

Hogg (*Prov. Med.*, No. 38, 1894) gives the opinions of a number of French, English, Belgian, Spanish, Holland and Switzerland gynecologists as to whether bicycling is beneficial or not to the health of women. The greater number agree, as Auvard, Chaput, Dolérs, Treub and Vulliet, that, as a rule, where it is not carried to excess in women with healthy genitalia, it is a profitable exercise: while a few others, among them Tait, condemn bicycling for women. The harmful influences which this exercise has is dependent upon its being overdone, the general health suffering, or upon faulty position and imperfect construction of the saddle, local diseases being produced. Women who have chronic inflammatory disease of the genital organs should not be al-

lowed to ride a bicycle, since it causes hyperæmia of these parts and thus accelerates the disease. A large number of French and other gynecologists believe that bicycling is a healing factor in disturbances of nutrition, as neurasthenia, hysteria, chlorosis, dyspepsia, etc.: also in chronic constipation, anæmic amenorrhœa and nervous dysmenorrhœa.

THE DESTRUCTION OF THE ENDOMETRIUM AFTER CURETTEMENT.

Veit (*Centralblatt für Gynäkologie*, No. 36, 1895) writes a paper recording a case and his observations regarding this rare result of curettement. That the uterine cavity can be obliterated through curettement has been shown beyond doubt, first, by the case reported by Fritsch, and later by Kustner. The writer's patient was a married woman who had for a long time been sterile, and becoming pregnant, aborted. The physician who attended the abortion had believed that all of the placental tissue had come away. The patient, however, began to have severe pain and profuse hæmorrhage, and a colleague was called in three days afterward and the uterine cavity was thoroughly curetted. Since then the woman had not menstruated, and it was for some time believed that she was again pregnant. A vaginal examination was finally made, showing that the uterus was not enlarged. The uterine body was somewhat lengthened, but not increased in its antero-posterior diameter. A sound could be introduced into the cervix to the internal os, where it met an insurmountable obstruction. It was concluded, therefore, that the obstruction was the result of destruction of the endometrium by means of the curette, and partial or complete obliteration resulted. The de-

struction of the endometrium from any cause in the non-puerperal uterus, the observer believes, is excessively rare. The first case which he saw was in Schroder's clinic. The woman had been sterile because of corporeal endometritis, and had been treated by introducing the porcelain burner of a galvano-cautery into the uterine cavity. In this case the uterine cavity was completely obliterated. He has also seen obliteration occur in cases of corporeal endometritis with hæmorrhage and profuse, purulent discharge (those cases where the ordinary forms of treatment have failed and hysterectomy is indicated), as the result of making applications of the chloride of zinc to the uterine cavity. The object of the applications of chloride of zinc was to destroy the endometrium and then obliterate the cavity. Obliteration does not, however, occur in every instance, and he now has two cases under observation where the uterine sound can be introduced without difficulty, but the symptoms have disappeared, and a scanty menstruation continues. He believes that the endometrium can be destroyed by the use of the curette. The muscle tissue into which the fundi of the glands extend prevents their complete removal, and it is from these gland fundi that the new endometrium grows. In the puerperal uterus the endometrium is in an atonic condition, and it becomes possible that over greater or less areas the entire endometrium and the muscle tissue containing the gland fundi can be removed by the curette. If these are areas opposite each other, they coalesce, and thus partially or completely obliterate the cavity. In the case reported by Fritsch, the glandular tissue must have been completely destroyed, while, in Kustner's case, only over a circumscribed area. He says it is strange that in those cases where

only part of the uterine cavity is obliterated the menstrual flow is absent and hematometra does not occur. He is of the same opinion as Kustner, that when the uterine cavity is completely obliterated, it is useless to reopen it. In this case the obliteration was only partial, and after six weeks' daily progressive dilatation he was able to introduce a sound to the fundus uteri. The menstrual flow then returned and has appeared regularly ever since. Conception has not as yet occurred. He believes that the endometrium of the fundus which was not destroyed extended over the injured surfaces of the cavity. As a result of these observations, he concludes that the endometrium of the non-puerperal uterus is only destroyed with the severest possible treatment, as by using the galvano-cautery or chloride of zinc. In the puerperal uterus the danger is, however, very great, and the curette should, therefore, be employed very cautiously. Since Fritsch has pointed out that in puerperal infection curettement is not of necessity indicated, and the writer advises that when it is employed the greatest care should be taken. The changes which take place in the endometrium of a puerperal uterus are best treated by the involution process, and curettement should not be applied soon or severely after abortion or birth. — *University Medical Magazine*.

UTERINE TRACHELORRHAPHY.

In the November number of the new London monthly journal, entitled *Clinical Sketches Illustrative of Practical Medicine and Surgery*, we find in an article by Dr. Arthur E. Giles, of the Chelsea Hospital for Women, the following section, under the heading of *The Kind of Cervix that Requires Trachelorrhaphy*:

“While readily granting that in certain appropriate cases repair of a torn cervix may be followed by the disappearance of general nervous symptoms, I have so little confidence in the value of this or any other operation for the cure of nervous disorders as such, that I shall leave this aspect of the question altogether and confine my remarks to the indication for trachelorrhaphy afforded by definite local conditions.

“When a cervix is torn (as during labor) the raw edges become healed over by granulation and cicatrization, but, as a rule, without uniting. The resulting fissure does not necessarily give rise to symptoms, even if deep or bilateral, for the cervical mucous membrane may gradually acquire the characters of the vaginal epithelium; the external os retreats, as it were, toward the internal, while the anterior and posterior lips of the cervix become in reality lips or lappets, which can be readily separated to a greater or less extent. A cervix in this condition is not uncommonly discovered when a vaginal examination is made on account of other symptoms: and we may readily admit, as a general statement, that a laceration that has healed over does not, as such, require repair.

“If general neurotic symptoms are found to coexist with such a condition as I describe, an attempt to cure them by local treatment will be almost a certain failure.

“But the lesion may take a less favorable course. The exposed cervical mucous membrane may become unhealthy, either alone or as a part of a general endometritis; it then becomes congested, and, in consequence, the lips become separated. I believe that the tendency to separation is exaggerated by a marked coincident flexion of the uterus. The everted mucous membrane is then bathed in

the unhealthy secretions (arising partly from the uterus) found in the vagina: and it is but a short step from this condition to that of erosion, with the formation of the retention cysts known as Nabothian follicles. The congestion and oedema of the uterus, which becomes heavy and cervix commonly spread to the body of the enlarged, resembling the condition found in subinvolution. With the chronic endometritis and metritis so produced is frequently associated prolapse of the ovaries into Douglas' pouch, especially when there is also retroflexion. The ovaries share in the congestion and become unduly sensitive. The usual symptoms complained of under these circumstances are abundant leucorrhœa, sacral aching, a feeling of weight and bearing down in the pelvis, and dyspareunia.

“We have here in outline a picture of a case requiring the operation of trachelorrhaphy. Yet must this not be done at once: a little preparation is necessary. Firstly, the patient must be kept in bed ten days if circumstances allow, and meanwhile the congestion is relieved by the usual applications of tampons and douches. The uterus should be restored to its place when this is possible, and one or more applications may be made to the endometrium, according to the extent of the endometritis. In some cases these measures will suffice for relief, or even temporary cure, but there is a considerable likelihood of a return of symptoms. But in any case this stage should be arrived at before repair is attempted, otherwise there is a risk of non-union, and so of failure of the operation.”—*New York Medical Journal*.

ANNALS

—OF—

GYNÆCOLOGY AND PÆDIATRY.

DEPARTMENT OF PÆDIATRY.

ORIGINAL COMMUNICATIONS.

The Treatment of Diphtheria with Diphtheritic Antitoxine Serum, in Private Practice.*

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During the past two years much has been written upon the treatment of diphtheria with diphtheritic antitoxine serum; but this has been based largely upon the results attained in large institutions for the care of contagious diseases, comparatively little having been presented to the medical profession as to its use in private practice. In public institutions for the care of these diseases, it is not difficult to compile the statistics of the results of a large series of cases, which must be of great use in determining the value of the remedy. But frequently the conditions are so vastly different in hospital than in private practice, that the results attained in a much smaller number of

cases in the latter are far more interesting and of more practical use to the general practitioner. In a hospital where the remedy is used uniformly without regard to the severity of the disease, and as early as possible in the course of the disease, with the assistance of trained nurses and every convenience for the care of the sick, the actual value can be determined only by comparing the results of the treatment of a large number of cases extending over a considerable length of time, with the results of a like number of cases for a like period, the same conditions pertaining to both series. But in private practice, where physicians are, as a rule, averse to using a remedy which is more or less in an experimental stage, and of which comparatively little is known

* Read before the Connecticut Medical Society, May 28, 1896.

from personal experience, a careful study of the results of the treatment in a much smaller series of cases can but be instructive and an aid in establishing the utility of the treatment, as applied to the disease, as met with in general practice.

Antitoxine, like other remedies, can be used by any one, and after a few cases the user can determine in his own mind what its action, whether for the better or for the worse, may be; but like any drug, one cannot hope to use it with the same skill and satisfaction in the first few cases as after a more extended experience and having observed its action in a large number of cases and under the varying conditions that are constantly presenting themselves to those of us who are frequently being called into families representing widely diverse walks in life.

Again, it is seldom that the general practitioner has the opportunity, even if he has a large and extensive practice, to observe a great number of cases of any one disease; consequently, he must depend largely upon the experience of his brothers in the profession. It is for the purpose of adding his mite that the writer, with only a limited experience, presents a digest of cases treated with diphtheritic antitoxine serum and the impressions received from closely observing the action of the remedy.

My records of fifty cases of diphtheria treated with the antitoxine serum show that eighty-nine injections were made and that there were forty recoveries and ten deaths. Of these cases,

twenty-four were laryngeal, of which six died and eighteen recovered, a death-rate of twenty-five per cent. of the laryngeal cases, or twenty per cent. of used, the condition of fifteen was all. When the antitoxine was first good, of twenty-two fair, and of thirteen bad. Examination of the urine of most of the patients after recovery showed albumen temporarily in two instances: there was more or less paralysis in four; pneumonia in one; and marked symptoms of sepsis in thirteen. Intubation was done in two instances, and in one tracheotomy was performed eight hours before the antitoxine was used.

It is not possible to describe the desperate condition of some of the little patients whose larynges were affected. Of this class of cases one died from septic pneumonia, three from exhaustion, one upon whom tracheotomy was performed, from suffocation on account of membrane extending and occluding the tube, and one whose condition was apparently good when the antitoxine was administered died suddenly about eight hours later. Of the four other deaths, I can only say that the remedy was used in each case after the disease had existed at least four days, and failed to accomplish the results wished; but I do firmly believe that all four could have been saved had the antitoxine been used forty-eight hours earlier.

The first thoughts that now present themselves to a progressive physician when he is called to a case of diphtheria are: Is antitoxine indicated in this case? Will the pa-

tient recover without it? To the first I answer, yes: to answer the second is impossible. Everyone suffering with diphtheria is in danger. How often have we seen persons suffering from this disease, concerning whose ultimate recovery we have had not the slightest doubt, become suddenly worse, symptoms of sepsis presenting themselves, or the trouble becoming laryngeal, or even when convalescence has been well established, the heart to suddenly fail, and those whom we considered beyond all danger, expire in a few moments?

In many instances, when the serum is used and the patient recovers, the result gives only negative proof of the good work done by the remedy. Past experience, I think, has taught us all that in laryngeal diphtheria, the means that we have formerly used were of but slight avail and the percentage of recoveries has been so small that we were ready to admit that very little could be done, and that they were practically hopeless from the first. In such cases there can be no doubt as to antitoxine serum being indicated. Any remedy that can occasionally save one person who has diphtheritic laryngitis, even if the failures are many, is deserving of trial any time when such a case is to be treated. In my estimation any possible harmful effect from the use of antitoxine is very remote, and any delay in its use increases the danger to the patient many fold, as by the time it is decided to use the remedy, so much of the poison may have been absorbed that a late administration is useless.

I therefore declare for its use in all cases and just as early in the course of the disease as possible.

Having determined to use antitoxine serum, we are confronted with other questions that must be answered to ourselves and best answered by experience. How much and how often shall it be used and what treatment shall be given in conjunction with it? We have no definite way in which to satisfy ourselves how much of the poison has been absorbed or what resisting power is peculiar to the patient. Some persons will without doubt absorb much, and their vitality is such that it will make no appreciable difference with them unless the poison is being continually taken into the system: while others will feel the effect very materially of a much smaller amount of sepsis.

It is desirable to give at first a large dose, in order that we may be upon the safe side as regards the danger from diphtheria, but at the same time we must remember that the reaction with its accompanying fever and general uncomfortableness, pain at the point of inoculation, pain in the joints, erythema, urticaria, etc., is usually in direct proportion to the quantity of serum used: and I am led to believe, in proportion to the amount not used by the economy in neutralizing the toxins in the blood.

We must then be able, with at least some degree of intelligence, to determine the minimum dose required to accomplish our purpose in the shortest time, remembering that it is safer, even if more uncomfortable, to give more than is absolutely necessary.

rather than less, and that probably a large dose in an emergency will make its effects manifest in a shorter time.

In cases at all serious, we cannot rest with a single administration of the serum. The indications for its repetition are the same as for the first use, except that it should be used in all cases at least once, the amount being determined by the severity of the disease, age, etc.; while for subsequent use its necessity is determined by the general condition, high temperature, fever, pulse and increase in the extent of membrane, or when the membrane does not undergo the changes expected. This may be at any time after the reaction of the previous injection has subsided, which is from six to twelve hours. I consider that it is proper to repeat at any time after twelve hours, if the constitutional symptoms seem to demand. It is not necessary to give as much in subsequent doses as at first, as we have neutralized some of the toxine, and the smaller the dose the less the reaction, and the interval may be shorter if more is required.

It is of importance that one in administering this remedy should know what to expect. A full dose having been given, the temperature goes up about three degrees in a few hours. The pulse increases in frequency, but not in proportion to the increase of temperature. The character of the pulse is materially changed, the tension being increased, showing that the serum is a stimulant. After about twelve hours the reaction has passed and the temperature drops to normal

or nearly so, unless the disease is very active, and the patient complains of great soreness near the point of inoculation. If the disease has made much progress, the remedy should be repeated every twelve to twenty-four hours, the necessity and amount being determined by the severity of the symptoms, until the temperature has been reduced and the pulse indicates that the action of the heart is not being influenced by sepsis.

Any decided change for the better from the action of the antitoxine need not be expected under from twenty-four to thirty-six hours; often the time is longer. The membrane, when the effect of the remedy is pronounced, at first becomes whitish, appears thinner and wrinkled and as if the edges were loose. If at this time the membrane should by accident or purpose be torn off, it is not likely to reform except as a thin film, resembling the early exudate of the disease.

After the expiration of the time necessary for the antitoxine to neutralize the poison, unless the case is very unfavorable, the improvement is very rapid and convalescence begins in a much shorter time than under any other treatment I have ever seen used.

At any time after about twenty-four hours subsequent to the first injection of the serum, there may be cutaneous lesions, sometimes slight, sometimes, profuse. These may be an erythema or an urticaria. In the latter case, often the wheals coalesce and partake of the characteristics of

both erythema and urticaria, becoming an urticarial erythema. While these lesions may appear at any time, they are more likely to appear upon the seventh and fourteenth days. Repeatedly I have seen the eruption appear within an hour of the expiration of the seventh day, in a few hours disappear, and at the same time upon the fourteenth day reappear. This I believe to be due to both the quantity and quality of the serum used. I have noticed that the clearer the serum, the less liability there is to be a profuse eruption.

I have never seen any lameness of the joints, described by some writers, the only pain being that due to the soreness at the point of inoculation. At this spot, where the needle has punctured the skin, I have several times seen an echymosis, probably due to a hæmorrhagic diathesis.

It is not necessary (and I believe it is better not) to give internal treatment. Locally it is well to apply an antiseptic; and I use hydrogen peroxide freely. The importance of plenty of stimulants is as manifest with this as any other form of treatment.

In regard to laryngeal diphtheria, a few words may be said that do not especially apply to pharyngeal and tonsillar diphtheria. It is of course of the very greatest importance that the treatment should begin early, as we have not only the disease to fear but stenosis of the larynx. The very shortest time to look for improvement from the use of antitoxine is twenty-four; hours usually longer. After the

membrane has become loosened, there may be great dyspnoea; consequently I always advise having an emetic at hand, and give it freely when the emergency arises. After having seen intubation done twice in connection with this remedy, and it having become necessary in both cases to remove the tube on account of its occlusion, and observing the relief given, even though the tube was not replaced, I have a theory that in this class of cases it is good treatment after twenty-four or thirty-six hours to introduce into the larynx some instrument of the same nature as the tube used for intubation, and mechanically tear off the membrane, trusting that the serum has so far done its work as to prevent more exudate.

In only two instances has albumen been found in the urine after recovery, although in most of the cases there have been several examinations. This certainly shows nephritis to be no more frequent after antitoxine treatment than any other.

As an immunizing agent I have had but little experience with antitoxine. Cases are being reported where it has been used for this purpose, in which the results have been extremely unfortunate. At the most, the proof of its efficacy is negative. Often do we see a single case, where many are exposed.

My advice to all is to give antitoxine serum as early as possible in the course of the disease; give a good quantity; do not expect to see results under twenty-four hours; use local antiseptics and stimulants, and in

laryngeal cases keep the larynx as clear from obstructions as possible either by mechanical means or by emetics.

My conclusions are, that antitoxine serum can not save every person who is afflicted with this dreadful disease, but the earlier in the course of the disease it is administered, the better are the chances for recovery. Even

in unfavorable cases, life is prolonged and in favorable ones, the membrane is limited in its extent and separates earlier, there is less nasal discharge, less infiltration of the tissues, the general condition is much improved, and finally the course of the disease is materially shortened, and there is less liability to complications or sequelae.

CASE.	Sex.		Results.	Age.	Location of Membranes.				Time from appearance of disease.	Number of injections.	Intubation.	Tracheotomy.	Condition.	Nephritis.	Sepsis.	Paralysis.	Pneumonia.	Class.
	Male.	Female.			Tonsils.	Nose.	Pharynx.	Larynx.										
I.....	1		Rt	7 ¹ / ₂ yrs.			1	1	4 days.	4			B					D
II.....		1	Rt	22 yrs.	1				2 days.	1			B					A
III.....	1		Rt	3 yrs.	1	1	1	1	5 days.	4			B					C
IV.....		1	D	45 yrs.					1 day.	1			F		1			A
V.....	1		Rt	7 ³ / ₄ yrs.			1	1	4 days.	5			B					A
VI.....		1	Rt	2 ¹ / ₂ yrs.					1 day.	1			G					B
VII.....	1		Rt	5 yrs.				1	10 hrs.	3			G					B
VIII.....		1	Rt	8 yrs.	1				5 days.	1			F					D
IX.....		1	D	4 yrs.			1	1	1 day.	1			F					B
X.....	1		Rt	2 yrs.	1				1 day.	1			G					B
XI.....	1		Rt	2 yrs.				1	10 hrs.	2			G					B
XII.....		1	D	19 mos.					6 days.	2			B					A
XIII.....		1	Rt	25 yrs.			1		2 days.	2			B		1			D
XIV.....	1		Rt	5 yrs.			1	1	5 days.	2	1		F	1	1	1		C
XV.....	1		D	3 yrs.				1	2	1		1	F					D
XVI.....		1	Rt	4 yrs.				1	2 days.	2			B	1				C
XVII.....	1		Rt	4 yrs.	1	1	1		1 day.	2			B					C
XVIII.....		1	Rt	7 yrs.				1	2 days.	2			F					D
XIX.....		1	Rt	2 ¹ / ₂ yrs.				1	10 hrs.	2	1		F		1			B
XX.....		1	Rt	3 yrs.				1	12 hrs.	1			F					C
XXI.....		1	Rt	2 yrs.				1	2 days.	2			B					C
XXII.....	1		Rt	22 yrs.	1		1		3 days.	2			F					C
XXIII.....	1		D	4 ¹ / ₂ yrs.	1			1	7 days.	2			B					C
XXIV.....	1		Rt	7 ¹ / ₂ yrs.	1				12 hrs.	2			G					A
XXV.....	1		Rt	26 yrs.	1		1		2 days.	1			F		1			B
XXVI.....	1		D	7 yrs.	1		1		5 days.	2			B		1			C
XXVII.....		1	Rt	2 ¹ / ₂ yrs.	1	1			2 days.	1			G					C
XXVIII.....		1	Rt	2 ¹ / ₂ yrs.				1	2 days.	2			F					C
XXIX.....	1		D	12 yrs.				1	2 days.	2			F					C
XXX.....		1	D	3 yrs.				1	3 days.	2			B					C
XXXI.....		1	Rt	3 yrs.	1				3 wks.	2			G			1		C
XXXII.....	1		Rt	39 yrs.	1				1 day.	2			F					B
XXXIII.....		1	Rt	6 yrs.	1		1		2 days.	3			F		1			D
XXXIV.....	1		D	14 yrs.	1				3 days.	2			F		1			D
XXXV.....		1	Rt	3 yrs.	1				2 days.	2			F					C
XXXVI.....	1		Rt	2 yrs.		1		1	2 days.	2			F					D
XXXVII.....		1	Rt	2 ¹ / ₂ yrs.	1		1	1	2	2			F					D
XXXVIII.....		1	D	6 yrs.	1	1			4 days.	3			F					C
XXXIX.....	1		Rt	3 yrs.	1				12 hrs.	1			G					C
XL.....	1		Rt	14 mos.	1				12 hrs.	1			G					C
XLI.....	1		Rt	7 yrs.	1				36 hrs.	2			B					C
XLII.....	1		Rt	5 yrs.	1		1		24 hrs.	1			F					C
XLIII.....		1	D	37 yrs.	1	1	1		5 days.	1			B		1			A
XLIV.....	1		Rt	6 yrs.	1				10 hrs.	1			G					C
XLV.....	1		Rt	3 yrs.	1				1 day.	2			F					C
XLVI.....		1	Rt	22 mos.	1				1 day.	1			F					C
XLVII.....		1	Rt	3 yrs.			1	1	1 day.	2			F					C
XLVIII.....	1		Rt	7 yrs.			1	1	1 day.	2			F					C
XLIX.....	1		Rt	7 yrs.	1				2 days.	1			G					B
L.....		1	Rt	15 mos.	1		1		2 days.	2			G					A

Results—D, Death; Rt, Recovery surely due to Antitoxine; R\$, Probably due.

Condition—G, Good; F, Fair; B, Bad.

Class—A, Care the best; B, Good; C, Fair; D, poor.

The Treatment of Diphtheria.

J. E. FACKLER, M.D.,

VERSAILLES, OHIO.

Read before the Ohio State Medical Society, May 28, 1896.

Inasmuch as the general history, etiology, pathology and diagnosis of diphtheria are matters of record, to which all may have access, and having nothing new to add to any of these departments of the study of this malady, I will say as little in reference to these as is consistent with an intelligent and practical presentation of a plan of treatment that has been found most efficacious as compared with all others that have become matters of record and subjects of comparison.

The recognition of this disease by the physician is seldom attended with any unusual difficulty. Ordinarily the chemical analysis of the fluids of the body, or the microscopical examination of the bacteriological elements, is not required, but by simple inspection the diagnosis may be made, with as much certainty as that of typhoid fever, pneumonia, malarial fever, and many other diseases. This is not intended to disparage the great value of the work of the bacteriologist, but in cases where the symptoms presented by the patient are insufficient, the aid of bacteriological examination is thankfully accepted.

That the primary reasons for the

presentation of this paper may become more apparent, let us consider, for a moment, some of the more characteristic and striking features in the clinical history of this affection. It is essentially a disease of childhood, however, not limited to this period of human life except so far as mortality is concerned. In many instances it exhibits a rate of mortality that is most appalling. In some epidemics almost all have died. In the Willard Parker Hospital at New York, as reported by A. Campbell White, M.D., in the *Medical Review* of Nov. 11, 1894, the average rate of mortality for the two preceding years, of children between the ages of five and sixteen years, was 17.8 per cent., and of children under five years of age 42.7 per cent., making a total average of all ages of 30.25 per cent.

The average mortality of all classes, in the Kaiser and Kaiserin-Friedrich-Kinderkrankenhaus at Berlin for the last five years preceding the introduction of the antitoxine treatment, as reported by Prof. Baginsky, was 40.25 per cent.

The reports of numerous other observers both in this country and in Europe indicate a mortality ranging from 25 per cent. to 80 per cent.,

so that the general average of deaths in children of all ages as indicated is about 40 per cent. Since the introduction of the antitoxine treatment the mortality has been reduced about one-half. Prof. Von Widerhoofer of Vienna reports a mortality under the serum treatment of 23.7 per cent. Baginsky of Berlin reports a mortality of 13 per cent. Dr. O. Heubnes, Professor of Paediatrics in the University of Berlin, in summarizing the reports from all sources where the antitoxine treatment was used, shows the average mortality to be 20 per cent.

The treatment exhibiting so high a rate of mortality in any disease of this period in life will not remain unchallenged by an intelligent and progressive profession.

Mere clinical statistics, however, are of no value only so far as they serve as an expression of the experience of the physician.

The impressions the intelligent physician receives at the bedside are of far more weight in determining the efficacy of a remedy, or in estimating the relative value of any system or plan of treatment, than the most accurate and reliable statistics can afford.

That the treatment indicated in diphtheria should be antiseptic germicidal and tonic is a well established fact, and universally admitted. Many remedies of this class, nevertheless, have proved unsatisfactory, and but few have maintained a prominent position for any great length of time in the treatment of this disease.

Among the latter, however, may be named potassium chlorate, tincture muriate of iron, hydrochloric acid, turpentine, phenic acid and pinus canadensis. The first three of these preparations have for many years held a conspicuous position in the armamentarium of the practitioner and still continues to be extensively used.

In a somewhat extended and exhaustive paper read before this Society by Dr. J. S. Halderman of Zanesville, O., and published in the Transactions of 1894, the preference of remedies in the treatment of diphtheria seems to be given to a combination of quinine, chloride of iron, sulphuric acid, chloride of sodium, and glycerine, for which very satisfactory effects are claimed.

In a paper read before the North Carolina State Medical Society by Dr. R. A. Patterson, and published in the Medical Review, St. Louis, Sept. 9, 1893, are reported a series of 30 cases treated with a combination of potassium chlorate, dilute muriatic acid, tincture muriate of iron and water, with most satisfactory results: all recovered.

From observations and some years of personal experience in the treatment of this malady, I am convinced that the efficient germicide and antiseptic, the true specific or antidote for the toxic principle of diphtheria, is found in these remedies.

Early in the history of my experience in the practice of medicine I was much impressed with the favorable results obtained from the use of a

preparation of chlorine in the treatment of certain zymotic diseases, notably typhoid fever.

Reasoning from analogy, the use of it was extended to the treatment of diphtheria and, for more than a quarter of a century the chlorine treatment has proved uniformly successful, not only in my own experience, but likewise in the hands of neighboring physicians who have made use of the remedy, not a case under this treatment having proved fatal in all this time.

Believing that good results are dependent upon the careful preparation and proper manipulation of the remedy, and that successful treatment is obtained not only from the selection of the proper remedy but by its prompt and judicious use, the various steps in its preparation and administration will be given with sufficient minuteness for all practical purposes.

The remedy is prepared as follows:

Take a four ounce bottle rinsed and well-drained; put into it about one drachm of potassium chlorate, in coarse powder; add from sixteen to twenty drops of chemically pure hydrochloric acid; apply gentle heat to the bottle until it is well filled with the gas. This part of the process should be prudently guarded, that the dangers of a possible explosion may be averted. Now pour into the bottle a small quantity of cold water; close the mouth of it and shake briskly for a few moments; add a little more water and shake as before: repeat this process until the

bottle is filled. This manipulation must not be conducted in the rays of the sun, and when completed the bottle must be corked and carefully enclosed in a wrapper to exclude the light. It is now ready for use. In the administration of this preparation no metallic spoon or vessel of any kind should be used. But take a empty glass tumbler and pour into it directly from the bottle about a teaspoonful of the chlorine preparation and add sufficient water to it to admit of the solution being conveniently swallowed.

This portion should be taken in about three hours time, by the patient swallowing a small quantity every twenty or thirty minutes. That the remedy may remain in contact with the throat as much as possible, nothing else should be swallowed soon after taking it. If the secretions of the month be offensive, the month should be carefully cleansed by washing out with the solution, and all necrotic tissue and detached membranes that can be removed without violence to the congested and inflamed parts should be mechanically removed, but no attempt to gargle or swab the throat should be made: neither should any harsh measures be instituted at any time, but the parts should, as much as possible, be maintained in a state of quiet repose.

If there be considerable fever (temperature 102° F. or more) the exhibition of fluid extract veratrum viride, one drop, with fluid extract aconite, one-half drop, in a teaspoonful of water every hour, will in a

very short time favorably modify the pyrexia. In cases where there is torpidity of the bowels, congestion of the portal circulation and want of proper action of the liver and kidneys, free action of the bowels should be obtained by the administration every two hours of calomel 1-4 grain and bicarbonate of soda 4 grains thoroughly triturated with sugar of milk, during which time the use of the chlorine must be suspended or withheld.

In a large majority of cases, however, the persistent and judicious administration of the chlorine solution alone is all that is necessary. Improvement in the appearance of the throat and the general condition of the patient is almost immediate, and after the first twenty-four hours of treatment is quite marked. The efficiency of this remedy is not limited to diphtheria alone, but extends to all cases of a diphtheritic character, necrotic and putrid sore throat and scarletinus angina. How this remedy acts I am not able satisfactorily to explain, neither is it necessary; the fact that it cures is of greater moment to the physician and the patient than everything else connected with it. It is most probable, however, that it attacks the poisonous substance which the pathogenic bacillus is said to secrete, the toxalbumen, upon which the virulence of the disease depends, neutralizes, eliminates, and renders it harmless. The chlorine solution should not be abandoned until the throat is clean and ulcers are healed. When the acute

symptoms have passed and convalescence is measurably established the tr. chloride of iron in small doses dispensed in water and glycerine will aid greatly in the restoration of the patient.

As an outward application to the throat, in severe cases, an ointment of camphor and turpentine has seemed to be most satisfactory.

The dosage and treatment here given is that for a child four or five years of age. In cases of infants the chlorine solution may be converted into a syrup by the addition of sugar, and is easily administered with equally good results.

The chlorine gas should be utilized as a disinfectant of apartments and dwellings infected with diphtheria. This in rooms unoccupied may be thoroughly effected without any difficulty. But in rooms that are occupied, some degree of caution must be observed that the atmosphere does not become too irritant to the respiratory organ of the occupants.

To readily accomplish such fumigation, take an ordinary dinner plate, place on it a quantity of potassium chlorate in coarse powder, pour into it a proportionate amount of hydrochloric acid (c. p.), moderately heat the plate if necessary carry it about the room or set it in a convenient place while the gas is being disengaged.

From infected foci treated in this way I have never known diphtheria to be contracted or to extend to other members of the family with any degree of virulence. But all subsequent cases were much milder in form.

more easily controlled and of comparatively short duration.

If the condition of the patient requires that the secretory and eliminative organs be aroused and brought into proper action, this should be promptly and effectively accomplished by the use of the calomel triturate as

above indicated, followed, if necessary, by the administration of castor oil and turpentine. The chlorine preparation should be renewed, that is, made afresh, every few days, as it may soon become deteriorated, especially if improperly handled.

SOCIETY PROCEEDINGS.

American Pediatric Society.

Eighth Annual Meeting, held at Montreal, Canada, May 25th, 26th, 27th, 1896.

JOSEPH O'DWYER, M. D. PRESIDENT.

Owing to the necessary absence of the President, Dr. James C. Wilson, the First Vice-President, presided. The first session was opened by the reading of the President's address, entitled the Evolution of Intubation. This was prepared at the request of the Council, and was a paper of the greatest interest, as it described the labors which Dr. O'Dwyer pursued with untiring devotion to a great idea through five long years. A bivalve tube was first used, but after three years of continued effort it was abandoned and experiments were begun with the solid tube. The paper described the various experiments made, with alternating failure and success, until at last obstacle after obstacle had been overcome, and imperfection after imperfection had been removed. As a result of this patient toil, perfected instruments were given to the profession, a very rare thing in the history of medicine. The various steps taken

in the attaining of this great result were narrated with the simplicity and modesty which has always characterized the literary work of Dr. O'Dwyer. A complete set of instruments, showing the evolution of intubation from the first bivalve tube to the present perfected model, proved of the utmost interest.

The first paper was read by Dr. George N. Acker, of Washington, on Gangrene of the Lung Following Typhoid Fever. Dr. J. H. Fruit-night, of New York, read a paper on Malignant Endocarditis and presented a specimen. As the bacteriological examination showed the condition to be due to the presence of streptococci, the author advocated the use of streptococcus antitoxine serum in such cases.

At the second session, Dr. A. H. Wentworth, of Boston, read a most exhaustive paper on Lumbar Puncture and reported twenty-nine cases. He affirmed that while normal cere-

bro-spinal fluid contains neither fibrin nor cells and is always clear, it is always cloudy in cases of meningitis, though the cloudiness is sometimes very slight. This is caused by cells differing with the variety of meningitis. The operation, the author believes, offers a valuable means of diagnosis. For such purpose, however, the microscope is essential and inoculation experiments are also of value. This was followed by a paper on Tapping the Vertebral Canal, with remarks on local treatment for tubercular meningitis, by Dr. Augustus Caillé of New York. He reported twenty-one cases, and believed that a study of the cases reported up to the present time will certainly convince the most skeptical that Quincke's puncture is of positive value as a method of diagnosis. It is simple and usually easy of performance. In two cases Dr. Caillé injected antiseptics into the sub-arachnoid space, but without material results. He proposes in some suture case to lay bare the dura by removing a button of bone and irrigating from a lumbar puncture upwards through an opening in the dura. Dr. C. G. Jennings, of Detroit, also read a valuable paper on Lumbar Puncture and reported practical experience. Dr. Floyd M. Crandall, of New York, read a paper on the Occurrence of Influenza in Children and reported local epidemics. Dr. Samuel S. Adams, of Washington, reported an extremely interesting case of Temporary Insanity Following Typhoid Fever. Dr. Frederiek A. Packard, of Philadelphia, reported a case of Endothelioma of the Brain with Atrophy of the Paralyzed Members. Dr. Henry Jackson, of Boston, read a paper on Nasal Feeding in Diphtheria, in which he advocated feeding by means of a soft tube passed through the nose into the

œsophagus in certain cases of diphtheria. As this can be done with ease, it does much in preventing exhaustion of the child's strength.

Dr. William Osler, of Baltimore, read a paper on the Classification of Tics or Habit movements. He made the following classifications: 1. Simple tic or habit spasm. 2. Tics with superadded psychical phenomena; *maladie de la tic convulsif*; or Gilles de la Tourette's disease. 3. Complex co-ordinate tics. 4. Tic psychique. An imperative idea is the psychical equivalent of, and has an origin similar to the motor tic. Each of these subdivisions was elaborated and illustrated by practical examples.

The third session was devoted to the antitoxine treatment of diphtheria. The report of the collective investigation committee of the society upon the results of antitoxine treatment in private practice was read. Over five thousand cases were reported, the results being, on the whole, far more favorable than any extended reports that have thus far appeared. A complete report will soon be published in full. Dr. A. F. Packard reported favorable results of the antitoxine treatment, and Dr. S. S. Adams read a paper on the comparative results of the treatment of diphtheria with and without antitoxine in the District of Columbia. It appears that the death rate from diphtheria in the District of Columbia, since the introduction of antitoxine has materially diminished. Dr. A. Seibert of New York read a paper on Sudden Death after Antitoxine Injections. He reported a series of striking experiments which showed that the injection into animals of carbolic acid, even in a very weak solution, was constantly followed by most characteristic spasmodic movements. Another series of experiments was made to determine the

effects of subcutaneous injections of air. The results seem to show that antitoxine can contain but infinitesimal quantities of carbolic acid. They also render the proposition reasonable, that the few sudden deaths reported after the injection of antitoxine might be due to the injections at the same time of air. The general discussion elicited by these papers was extremely interesting and showed a unanimous and very strong sentiment in favor of antitoxine.

At the fourth session, Dr. Rowland G. Freeman, of New York, read a paper on Low Temperature Pasteurization of Milk at about 67°C. He proved that this temperature was sufficient to kill numerous pathogenic bacteria and various atmospheric bacteria, and referred to the importance of avoiding unnecessary heat in the preparation of milk for infants' use. He presented a new apparatus of simple construction, designed to pasteurize milk at 67°C. Dr. Charles W. Townsend, of Boston, reported several cases of thigh-friction in infants. Dr. William P. Northrup of New York, reported a most interesting case of apparently relapsing cerebro-spinal meningitis, followed by death and autopsy, which elicited a warm discussion on the pathology and diagnosis of meningitis. Dr. Henry Lafleur, of Montreal, reported a case of insolation in an infant of thirteen

months. Dr. A. D. Blackader, of Montreal, reported a case of enlargement of the liver in a young child, with symptoms closely resembling those of typhoid fever.

Papers were read by title, by Drs. B. K. Ratchford, of Cincinnati; F. Forchheimer, of Cincinnati; Irving M. Snow, of Buffalo; and Henry D. Chapin, of New York.

The last session was devoted to the presentation of pathological specimens, specimens being presented by Drs. Rotch, Holt, Caillé, Adams, Packard, Acker, Freeman, and Townsend.

In the executive meeting, the following officers were elected for the coming year.

President, Dr. Samuel S. Adams, Washington, D. C.

First Vice President, Dr. W. S. Christopher, Chicago.

Second Vice President, Dr. Charles W. Putnam, Boston.

Secretary, Dr. Frederick A. Packard, Philadelphia.

Treasurer, Dr. Charles W. Townsend, Boston.

Recorder and Editor, Dr. Floyd M. Crandall, New York.

Member of Council, Dr. William Osler, Baltimore.

Chairman of Council, Dr. William P. Northrup, New York.

DR. LLOYD M. CRANDALL,
Recorder and Editor.

REVIEW OF PÆDIATRY.

THE ARTIFICIAL FEEDING OF INFANTS.

Dr. Dillon Brown of New York recently read an article on the above, before the Hospital Graduates' Club, which is so practical and to the point that we quote it entire :

"The basis of every artificial food for healthy infants must be milk, and for all practical purposes this means, from necessity, cows' milk.

"Therefore the 'milk question' becomes of primary importance in the artificial feeding of babies. For cow's milk to be wholesome, it must come from a healthy and properly fed cow : its nutritive qualities should not be diminished by adulteration, whether with harmless substances or not ; and it should be free from contamination by decomposing animal matter or by bacteria. This makes it almost as important a subject as the question of water supply, and certainly a more difficult and complicated one to solve. When we refer to cows' milk in the following notes we mean only wholesome cows' milk, which is fresh, free from adulterants and bacteria, and is obtained from healthy cows, which are properly fed on hay or grass, kept in clean stables, and given clean and fresh bedding. At milking every precaution is taken to prevent contamination of the milk by dirty hands, udders, and vessels.

"Of course, artificial feeding should be discouraged if good human milk in sufficient quantity can be obtained. When cow's milk is used, it must be modified to resemble as closely as possible human milk. Cow's milk contains somewhat less fat than woman's

milk, but the former contains 3.76 per cent. of albuminoids, while the latter only contains 1.94 per cent., or about one-half, and of the albuminoids, the casein in cow's milk is five times, while the albumin is only one-half as great as in human milk. If we remember that cow's milk contains more proteids and less fat and sugar, that it is distinctly acid, while the other is slightly alkaline, we have a basis upon which to prepare the food.

"The general principle underlying all methods of artificial infant-feeding is to modify cow's milk so that it will resemble as closely as possible human milk ; and this is done by diluting with water to reduce the percentage of albuminoids to the proper amount, and adding enough cream and sugar of milk to raise their percentage to that in normal human milk, not forgetting to compensate for the loss brought about by the first dilution with water.

"The average milk for a baby will contain 4 per cent. of fat, 7 per cent. of sugar, and 1 to 2 per cent. of proteids, which proportion can be approximately obtained by mixing cream, milk, sugar of milk, and water in proper quantities, and adding enough bicarbonate of soda or saccharated solution of lime to make the mixture slightly alkaline.

"Good centrifugal cream contains about 20 per cent. of fat, but even where people have their own cow the cream is liable to be exposed to contamination by being kept too long. Therefore, it is wiser to use a cream obtained by either Meig's or Rotch's method, although it is weaker in fat.

Meigs thus directs: "One quart of good ordinary milk is placed in a high pitcher or other vessel, and allowed to stand in a cool place for three hours; then one pint is slowly poured off from this, care being taken that the vessel is not agitated, the object being to obtain the upper layer of fluid, rich in fat, and leave the lower, comparatively poor, portion behind. This upper half can be drawn off much more easily by having a stop-cock in the side of the vessel, half-way between the top and bottom.

"Meigs makes his food by adding three tablespoonfuls of this weak cream to the same quantity of sugar water, made by dissolving 18 dr. of sugar of milk in one pint of water; and to this is added two tablespoonfuls of lime-water. If a larger quantity is needed, the same proportions are kept.

"However, it seems to me that Rotch's plan is better, as it is simpler and allows more accuracy and variety in modification. He lets a quart of good milk stand in ice-water for six hours, and siphons off from the bottom 24 oz. of milk, leaving 8 oz. of cream on the top, which will, on the average, contain 10 per cent. of fat.

"Now it becomes a comparatively simple matter to modify the food by mixing the various ingredients to get any percentage of fat, proteids, and sugar.

"The average milk—namely, 4 per cent. fat, 7 per cent. sugar, 1 1-2 per cent. proteids—will be obtained by mixing 8 oz. cream, 1 oz. lime water, 11 oz. water, and 8 1-4 dr. of milk-sugar (no milk): "4-7-2" milk will be obtained by mixing 8 oz. cream, 2 1-2 oz. milk, 1 oz. lime water, 8 1-2 oz. water, and 7 1-2 oz. milk-sugar, etc. By increasing the cream, the percentage of fat and proteids will be increased in a 20-oz.

mixture by about 0.5 per cent. of the former and 0.18 3-4 per cent. of the latter for each ounce: the percentage of proteids will be increased 0.18 3-4 per cent. for each ounce of the skimmed milk, etc.

"Even more accurate than the home modification of the food is the process of the Walker-Gordon Laboratory, and this undoubtedly marks an era in the use of infant-foods. The objections to it are those which apply to all patented processes, and its expense. My own experience has been that the best results are obtained by the home modification of a cow's milk which is wholesome and properly handled; and when such a milk can be obtained, the infant thrives on a raw milk much better than on a pasteurized or sterilized one. And again, I usually remove as much of the casein of the milk as possible with rennet or dilute hydrochloric acid, and substitute in its place the albumin from an egg. This gives better results, as we would expect when we remember that the proteids of cow's milk, as compared to human milk, is for casein, as 3.01 is to 0.63, while for albumin it is as 0.75 is to 1.31. In other words, cow's milk contains five times as much casein and only one-half as much albumin as human milk.

"There is no doubt that some children with weak digestion require certain additions to the foregoing combinations; and the question of adding cereals, Liebig foods, milk foods, meat juice, or of sterilizing, pasteurizing or peptonizing the food presents problems that would require more time to discuss than can be devoted to it in this short paper. The farinaceous foods and the so-called milk-foods are, in my experience, never indicated and are usually harmful. The Liebig foods are often of value in children with poor digestive powers; but it

must be remembered that they never can and do not claim to be a substitute for milk, but are only to be used as a valuable addition in certain cases to properly handled and properly modified cow's milk."—*American Medico-Surgical Bulletin*, May 9, 1896. Page 619.

SCURVY IN INFANTS.

In a very interesting paper read before the Clinical Section of the Suffolk District Medical Society, Dr. Charles W. Townsend reports twelve cases of this infantile malady. In conclusion he says: "By way of summary, it is to be noted that the twelve infants were between seven and sixteen months of age, all but three being either nine, ten or eleven months old.

"All suffered from pain, especially on handling, particularly in their legs and often mistaken for rheumatism. In eight pseudo-paralysis occurred; in four fusiform swellings of the legs were discovered. In nine the gums were swollen, spongy and bleeding, and in four ecchymoses of the skin were noted; and in five the extreme pallor was a prominent symptom. In one case there was hæmaturia. Three were complicated with a moderate amount of rachitis.

"As regards the diet, two had been fed on proprietary foods and water without any milk; five had been fed on condensed milk and water (generally very much diluted), with some proprietary food added in all but one case; one had been fed on boiled milk and a proprietary food; another on sterilized milk and oatmeal water; while three had been fed on a mixture of milk, cream and water with sugar of milk, sterilized at 212° in two cases and Pasteurized at 167° in another case. This group of five

cases suggests that boiling or sterilization was the cause of the scurvy, but a careful examination of the case shows that the quality of the mixture was insufficient in three of the cases, considering the age of the child. In one of these the milk was heated only to 167° , and the child recovered on anti-scorbutic treatment and increasing the quality of the food without omitting the Pasteurization, showing conclusively that the trouble could not be laid at the door of this process.

"This leaves two cases when the quality of the food, although not up to the standard, was of fair strength, when in one case boiling, and in the other steaming at 212° was employed. As in both cases the quality of the milk was improved when the sterilization was omitted, it is not fair to say that the doing away with sterilization was the cause of the recovery, although this was perhaps a factor in it.

"The treatment in these cases consisted in giving fresh cow's milk and orange-juice; and in some of the cases beef-juice was added."—*Boston Medical and Surgical Journal*, May 21, 1896.

SCHOOL DENTISTRY.

The Committee on School Hygiene of the Ontario Provincial Board of Health made the following recommendations, at a recent meeting, which were adopted by the board:

"That dental inspectors be appointed by local boards of school trustees to periodically visit schools and examine children's teeth, and that a dental hospital be started in Toronto for the benefit of poor children; and these recommendations be urged upon the attention of the Minister of Education."—*American Medico-Surgical Bulletin*, page 676.

IRRIGATION OF THE PERITONEAL CAVITY THROUGH THE UMBILICUS.

Dr. John T. Pitkin describes in the *Buffalo Medical Journal* a new method of irrigating the peritoneal cavity, which is notable for its simplicity and freedom from danger. When pus has found its way into the peritoneal sac it is imperative to remove it; to accomplish this Dr. Pitkin strongly advises the re-opening of the umbilical fenestrum, the insertion of a soft rubber drainage tube, through which the pus may escape, and free and repeated irrigations be made.

Dr. Pitkin calls attention to the anatomical features of the umbilicus: the abdominal wall is thinnest at that point, consisting largely of cicatricial tissue perforated by the cord-like remains of the umbilical vessels. The strength of the abdominal wall at the umbilicus varies very much in different subjects; there is no muscular or adipose tissue there, and for surgical purposes the region is practically non-vascular.

He obtained from some of his colleagues reports of three cases of general suppurative peritonitis in which the navel opened spontaneously, discharged for several days, was allowed to close again, followed by fatal consequences. The history of a little patient of his own, treated by umbilical irrigation, offers a cheerful contrast to the expectant plan of treatment:

• Julia M. K., aged 4, German descent: previous personal and family history good: only child. September 29, after excessive gastronomic indulgence, enteritis ensued with twenty to thirty movements per diem. October 10, stools infrequent, general peritonitis developed. November 1, inflammatory processes subsided, patient allowed freedom of house. November 6, small bunch, size of a

hickory nut, protrudes from navel. Physician being undecided as to its nature, was dismissed from the case. November 9, bunch has continuously increased in size, now as large as a lemon: constipation alternates with diarrhoea. Second physician called. Diagnosis—from location, serous covering, crepitation and reducibility—umbilical hernia. Truss recommended. November 10, rupture of bunch took place: considerable fetid matter liberated. November 18, purulent discharge decreasing, opening at navel growing small, obstipation and emesis pronounced. November 19, 20, 21 and 22, complete obstruction, all food rejected by the stomach, emaciation marked, medicines of no avail: prognosis of physician, child must die. November 22, 10.30 P. M., as a last resort the writer was summoned to the patient's bedside. The little face was drawn and pinched, pulse hardly perceptible at the wrist. For five days vomiting had been unabatable, nothing had passed the bowels, urine very scant and high colored—nearly suppressed—emaciation was extreme: little more than skin and bone remained of an interesting child.

• Her abdomen was greatly distended and tympanitic: most marked over the small intestines, dullness in hypogastrium. Diagnosis, pyoperitoneum and obstruction to lower small intestines by pressure and adhesions. Treatment: reopened navel, liberated large quantity of foul matter. Inserted soft rubber drainage-tube, through which liberal injections of warm water, sterilized by boiling and rendered alkaline, and antiseptic by the adding of Seiler's tablets, six to the pint. Similar injections were administered per rectum, peptonized food by mouth and rectum. Peritoneal irrigation was performed daily for over a week, then with longer in-

tervals until the wash water returned perfectly clear. The navicular opening was then allowed to close, the patient making an uninterrupted recovery. By the process employed all foreign matter was removed from the peritoneum, its cavity cleansed and the adherent surfaces separated from each other by hydrostatic pressure."

"Are we not led to conclude that the navel is a semi-normal passage, a sealed abdominal os, the reopening of which may be frequently indicated and accomplishable, either by natural forces or the surgeon's knife, with the danger of shock and collapse reduced to a minimum, and that thorough repeated aseptic irrigation of the peritoneal cavity may be demanded as a life-saving measure whenever that structure has been invaded by bacteria or their products?"—*New Orleans Med. and Surg. Journal*, Feb. 1896.

SPORADIC CRETINISM.

Dr. Wm. B. Noyes reports a case of "sporadic cretinism" in an exceedingly interesting paper read before the New York Neurological Society, March 3, 1896. The case was "a child two years old, not much more advanced than a normal baby of six months. It seemed bloated, with a protuberant abdomen, puffy cheeks and face: the eyes were dull and listless; the nose short and retroussé; the tongue swollen and protruding from the mouth, with saliva constantly dripping from between the thick protruded lips; the neck was short and thick, this thickness being partly due to two swellings of moderately hard consistence just in front of the sternocleido-mastoid muscles. The child was utterly incapable of holding

up its head or moving its limbs, or taking notice of things about it, and seemed to be idiotic. The fontanelles were wide open and the bones of the skull soft. The length of the child was twenty-four inches. The arms and legs were quite short in comparison to the size of the body and head, and were somewhat swollen at the epiphyses, though not painful or soft like the swelling of rickets. There was no cranio-tabes, rhachitic rosary, bending of the bones, or other rhachitic symptom. The mother told me that the baby was her first child, and her labor, though prolonged, had been normal. She and her husband were young, healthy people—he twenty-four years old, she twenty-seven, residing near the sea-shore. All their relatives were healthy or had lived to old age. The baby weighed eight and one-half pounds at birth, seemed healthy and gaining half a pound a week, reached fourteen pounds at the end of two months. Then it stopped short, and for more than a week did not gain at all, except a transitory increase in change of diet. The chief complaint was persistent constipation and weakness, for the mother had not noticed the other symptoms."

The child was put on thyroid treatment, and at once began to improve. Five months later she weighed twenty-two and one-quarter pounds and looked like any other child. Dr. Noyes' paper is illustrated by three striking photographs. He concludes with, or rather the report of the case precedes, a very interesting and exhaustive study of the subject which cannot be well abstracted in our limited space.—*The New York Medical Journal*, Mar. 14, 1896.

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ORIGINAL COMMUNICATIONS.

Infectious Endocarditis Following Pyosalpinx.*

DR. DEGUY.

Interne to the Hospitals of Paris.

* Reported at the Anatomical Society of Paris, April 24, 1896.

A. C., aged twenty-one, a dress-maker, entered the hospital on April 9, 1896, in the service of Dr. Gingeot. No hereditary taint. As to her former diseases: she had typhoid fever at the age of fifteen; then two attacks of acute articular rheumatism, the last one occurring two years ago. Following these attacks of rheumatism, she had violent palpitations. The patient also says that she has had a slight metritis: but she said so little regarding this that an examination of the genital organs was neglected to be made. For nearly six months the patient has had attacks of fever, for which she took sulphate of quinine, which never gave relief. These attacks occurred quite

frequently in the morning and were composed of only some severe chills with an elevation of the temperature. We only obtained these latter facts indirectly, because the patient said she had been well up to the 2d of April, 1896; and that since that time, general symptoms of a grave character had appeared, characterized by fever, anorexia, chills, and an intense headache.

She then entered the Hospital Laennec on April 9th. In the afternoon, when she was examined, besides a very marked fibrile condition, I found a few rheumatoid pains in the right leg over the tibio-tarsal articulation, in the muscles, and along the tendons of the extensor muscles. These pains were not accompanied by swelling of the tibio-tarsal articula-

tion, nor elevation of the local temperature; and still more, over the heart a very distinct murmur of mitral insufficiency, and a certain degree of dullness in the heart murmurs, were found. The lungs were negative. Six grams of salicylate of soda were prescribed.

April 10th. The patient had chills in the night, and since the morning she has complained of very intense dyspnoea; but auscultation of the lungs revealed nothing. The pains persist, but have not become generalized. In the pre-cordial region, the patient says she has a feeling of weight and tightness. The mitral murmur has disappeared, but the dullness in the heart murmurs persists. The liver is large, but painless. A notable quantity of albumin was found in the urine.

April 11th. The patient, whose temperature was 37° , 6 C. at 8 o'clock in the morning, had a violent chill towards 10, the thermometer showing this time 40° , 6 C. At the same time that the chill occurred, there was a sensation of heat, which was followed by a perspiration. These three elements, chill, heat and perspiration, exist all at the same time. There is an intense headache with very severe dyspnoea; but nothing can be found in the lungs or in the pleura. There was a stitch on the left side, which was badly indicated by the patient as being in the region of the heart and the spleen. The latter was found increased in size by percussion. The systolic murmur had disappeared from the heart; but

the first sound had a vibrating metallic pitch similar to rapid shocks given to a metal stethoscope. The heart is bounding; the pulse strong and rapid.

April 12. Condition the same. The systolic murmur reappears at certain times; but disappears quickly even when the ear is applied to the chest.

April 13th. The normal sounds of the heart can hardly be heard at all, and the metallic note of the first sound has disappeared.

April 14th. The heart sounds are hardly to be heard at all over the apex, and a pericarditic friction sound was noted. The pains in the legs persist in spite of eight grams of salicylate of soda, and one gram of sulphate of quinine. The patient still has pseudo-intermittent attacks of fever in the morning, which last from 10 o'clock to 12.30, and the temperature reaches about 40° . The patient still does not complain of abdominal pains.

The urine amounted to one litre in twenty-four hours, albuminuria. The dyspnoea is very intense; but nothing could be found in the lungs. An exceptionally severe headache. The stitch in the left side was more painful, and scarifications were ordered.

April 16th. Chills and condition the same.

April 17th. The heart sounds commence to be heard again with a slight degree of tachycardia; pulse 108; the mitral murmur reappears and the friction sounds persist.

April 18th. Cold baths were

tried for the fever, but without result. The heart remained the same.

April 19th. The patient became delirious. The headache was intense, and the sight was hazy. The heart sounds were still very weak, but nevertheless, easily heard. The mitral murmur appears and disappears. The cold baths were continued and produced a momentary improvement in the attacks of fever. Embryocardiac rhythm.

April 20th. After a relatively calm night, although occasionally delirious, the patient was taken with her fever attacks in the morning, after which she completely lost consciousness. When I arrived, she presented a convergent strabismus and a marked comatose condition. Respiration very slow. Inspiration was sudden and expiration also: and afterwards periods of apnœa lasting about thirty seconds were noticed. The patient died at 10 o'clock in the morning.

Diagnosis—old rheumatismal endocarditis with a murmur produced by mitral insufficiency, recent infectious endo-pericarditis of unknown cause, because the rheumatismal pains could not be attributed to pure rheumatism; and still more, secondary meningitis. As I have already remarked, vaginal examination was not made.

Autopsy performed on April 21st, showed on the left, recent pleural adhesions: congestion of both lungs, especially at their bases.

The heart showed a total cardiac symphysis with recent adhesions. The organ was then opened aseptically.

Looking into the left ventricle, two large vegetations the size of small cherries were seen on the mitral valve. These vegetations were immediately scraped with a platinum wire, and two tubes of serum, one of gelose, and one of bouillon were inoculated, with a negative result, as no growth was found on any of them at the end of a week. The heart was then removed from the thorax and was found soft and flaccid with a considerable dilatation of the left auricle. On each mitral valve there were large vegetations, the size of a cherry, irregular in shape, with a large base of implantation, very adherent and with a surface which was black in some places. The very borders of the mitral valve were thick, indurated, especially at the left corner, which were traces of a former endocarditis.

The liver was large, but on section was apparently normal. Its weight was 2100 grams.

The spleen was very large and presented adhesions due to a generalized perisplenitis. It could not be directly removed because it would burst between the fingers and allow a blackish, thick fluid to escape. After total ablation, it was found that there was only a shell, measuring one millimetre in thickness, surrounding the organ and making up a splenic tissue which embraced this thick liquid, which escaped when an attempt was made to remove the organ. The long diameter of this shell was 15 centimetres. At the lower part there was still a little splenic tissue about

the size of small orange: but all the rest was a cavity. The kidneys were of normal size and very easily decorticated. The cortical substance was pale and decreased in thickness.

The pancreas was normal. In the true pelvis, generalized adhesions of pelvi-peritonitis were found: and in the median line a cyst of the left ovary, the size of a small fetal head, was seen. This cyst was full of a milky, thick liquid.

Inoculations were made on serum, bouillon, and gelose; but remained sterile. Two or three other small cysts were also found. When detaching them from the peritoneal adhesions, a purulent pocket was broken, which proved to be the right tube communicating with the cul-de-sac of Douglas, which was transformed into a purulent cavity, while at this part the rectum presented a blackish color. No cultures were made from the pus which had been contaminated on account of the difficulties that we had to break up the adhesions. Direct microscopical examination was not made. There was no metritis, and

in fact we were dealing with a right pyosalpinx with secondary pelvi-peritonitis.

On incising the dura mater, some islands of pus were noted in the cerebral convolutions. At the bulbar region quite a quantity of sero-purulent liquid was found. Nowhere could we find an embolus. Nothing could be found in the brain.

Histological sections were made from the vegetations of the endocardium and colored by Gram's method: and the presence of micro-organisms, mostly isolated, sometimes in the form of diplococci, were seen. Other preparations, stained by the Kulme-Nicolle method or with phenic thionin, gave the same results.

In this case it may be said that the salpingitis was the starting point of an infectious endocarditis, and this fact is to be placed under the same head as the cases of puerperal endocarditis, or those consecutive to pelvi-peritonites, as mentioned in the classical works on obstetrics and gynaecology.

Pruritus ani; Differential Diagnosis of Abdominal Pain.

(NOTES FROM THE GYNÆCOLOGICAL CLINIC OF DR. CUMSTON. REPORTED BY E. R.)

A young woman was presented who complained of intense pruritus around the anus. There was no

history of hæmorrhoids and on examination the external genitals and anus were found perfectly healthy.

Dr. Cumston remarked that patients suffering from pruritus ani were usually either arthritic or nervous: neurasthenia and high living were also factors in the etiology of this affection. The pruritus was a real neurosis of the skin, consequently a combined local and general treatment was necessary.

Local applications were to be applied with absorbent cotton. A decoction of marsh mallow or coca leaves, applied as hot as could be born was recommended. When these were not sufficient, solutions or ointments containing carbolic acid, chloral, salicylic acid or menthol were to be tried.

R	Menthol.	4.0
	Alcoholis.	30.0
	Aq. dest.	60.0
	Acid acetic. dil.	150.0
M. D. S.	For external use only.	

R	Acid. salicylat.	3.0
	Vaselin.	30.0
M. D. S.	Apply as required.	

R	Acid. salicylat.	1.0
	Zinci oxyd.	4.0
	Cocain. hydrochlorid.	0.50
	Vaselin.	30.0
M. D. S.	Apply as required.	

R	Acid. carbolic.	5.0
	Kalii hydrat.	2.0
	Ol. lini sem.	30.0
	Ol. bergamot	9.5
M. D. S.	Apply at bedtime.	

An ointment containing guaiacol was good, also suppositories of belladonna or cocaine.

In very severe cases deep cauterization of the parts with nitrate of silver or even with the thermocautery had been employed.

Section of the nerves gave good re-

sults in pruritus of the anus, vulva and scrotum when the affection was very intense.

The parts should be constantly kept covered with some inert powder, but the local treatment was simply palliative and in order to bring about a cure the nervous element should be treated.

To this end a very strict general hygiene was to be insisted on. Excess of every kind, both mental and physical were to be avoided. All excitants as tobacco, coffee, tea, wine, game, shell fish, cheese, salted food, and spices were to be avoided. The regularity of the intestines should be watched and after stool the patient should wash the anus with one of the above mentioned decoctions.

Those suffering with an arthritic diathesis on which depends the pruritus were often benefited by a long continued treatment with the lithium salts.

R	Natrii phosphat.	
	Lithii citrat.	aa 15.0
	Aq. menth. hip.	150.0

M. D. S. A teaspoonful in a glass of water to be taken at each meal.

Antipyrine is sometimes excellent for calming attacks of pruritus. Fifty centigrams given before dinner and the same dose at bed-time is ordered. When this valuable drug is not well born, Brocq gives carbolic acid internally in doses varying from five to fifty centigrams in twenty-four hours, either alone or combined with the tincture of gelsemium, cannabis indica or hamamelis. Dr. Cumston

has found carbolic acid very useful in these cases.

Tincture of valeriana or valerianate of ammonium may be given and according to the professor were better than the bromides, chloral or opiates in this affection. Electricity or the hot douche (36° to 38° C) along the spinal column were highly recommended by Brocq. Patients affected with pruritus ani should be carefully treated as their lives were often made absolutely miserable by their disease.

The next patient shown to the class was a married woman of thirty-five years, pale, thin and sickly looking. She complained of much pain principally in the lumbar region and low down in the abdomen. The pain was better when the patient was in the decubitus dorsal position. Examination revealed endometritis of the corpus uteri and a left sided laceration of the cervix.

Dr. Cumston said that women often consult the physician for abdominal pain which is considered by the patient as indicative of uterine disease, now so very fashionable. Now in the practical point of view, it was most necessary to make a diagnosis of the pains, to ascertain if they be parietal, pelvic or extra-pelvic or neuralgic.

Parietal pain has its starting point in a weakness of the abdominal walls, muscular distention or fatigue, or an excessive sensibility of the patient. It was characterized by extreme persistence, vague localization, and only being produced by the erect position

or by walking. When the pain persists when the patient lies down, some abdominal viscus, especially the uterus, is probably the seat of some lesion and the physician should make a careful examination. If these organs are found normal, the diagnosis of muscular pains due to weakness or neurasthenia may be made.

Pelvic pain may be due to inflammation or passive congestion, produced by chronic metritis, salpingitis, ovaritis, stasis, version or flexion of the uterus. It is deeply seated in the pelvis or lumbar region, recurring, improved by dorsal decubitus. If it is a symptom of a lesion of the ovary or uterus, the pain will be found in the region of the anterior superior spine of the ilium or over the sacrum or hypogastric region: it is increased by coitus and at the menstrual periods. When due to uterine contractions, the pain occurs by paroxysms lasting one or several minutes and dorsal decubitus in no way influences it.

Neuralgia has no relation to the position of the patient; whether she be standing or lying down the pain is the same. Neuralgia is produced by some morbid general condition such as anæmia, chlorosis, neurasthenia and is very variable in its manifestations and intensity like all nervous affections.

Extra-pelvic pain may be produced by the liver, stomach, intestine or kidney. Hepatic colic is sharp, paroxysmal, localized in the right hypogastric usually, and is accompanied by nausea and vomiting and often,

but not always, by jaundice.

Intestinal colic is felt along the track of the ascending, transverse and descending colon. The horizontal position does not cause it to diminish, but when gas or feces are passed it is improved.

Gastralgia is due to dyspepsia, ulcer of the stomach, cancer and the various nervous or inflammatory affections to which the stomach is subject. The pain increases or diminishes by the introduction of food into the viscus.

Nephritic colic is very violent, paroxysmal, and often accompanied by vomiting, bloody urine or gravel. The pain complained of in floating kidney is characterized by its acute-

ness, short duration and disappearance coinciding with the cause.

When a calculus is lodged in the ureter, its presence may be detected by palpation because there is exaggerated sensibility and increase in size of the kidney. However, it must not be forgotten that an extreme degree of concentration of the urine, and the resulting irritation caused by its passage through the kidney may produce the same pain by palpation, and which soon disappears by a proper treatment.

The pain of chronic nephritis and pyelitis may be easily diagnosed by chemical and especially microscopical examination of the urine.

The Treatment of Ectopic Gestation by Abdominal Section.*

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*Abstract of paper read by invitation before the Chicago Gynaecological Society, April 17, 1896.

In considering the treatment of ectopic gestation by abdominal section, it is necessary to divide the subject so as to correspond to the several phases under which cases present themselves for operation.

I. *Prior to Rupture or Abortion.*
—Comparatively few cases present symptoms of sufficient gravity to lead to a medical consultation before rupture. The differential diagnosis between the tubal enlargement of in-

flammation, or hydrosalpinx, and ectopic gestation is attended with many difficulties. After the fourth week of gestation, and with suppression of menstruation, the diagnosis of ectopic gestation, while presumptive, can be made with a reasonable degree of certainty. Numerous cases diagnosed as unruptured ectopic gestation, and verified by operation, are now a matter of record. As, however, the conditions from which unruptured ectopic gestation is differentiated with so much difficulty call for ab-

dominal section and extirpation of the tube, this procedure is not only warrantable, but also strongly advisable, where even a suspicion of ectopic gestation exists. The greater the presumption of ectopic gestation, the more urgent must be the indication for operation. No delay in instituting operative measures should be tolerated. No woman with an unruptured ectopic gestation is safe until the vessels of the tube have been tied.

It would seem scarcely necessary to speak in further condemnation of the employment of electricity for the destruction of the life of the foetus. The manipulation of the pregnant tube, necessary to the application of electricity, may be, and has been, the immediate cause of tubal rupture. If the foetus is killed, the condition within the tube resembles incomplete tubal abortion, and, as in the latter case, may terminate in various ways, and the uncertainty of the method of termination should condemn the procedure. The ovum may be absorbed, and give rise to no further trouble: hæmorrhage into the tube, and through its unsealed abdominal ostium into the peritoneal cavity, with or without extrusion of the blighted ovum, may occur, with an immediate or subsequent fatal result to the patient: or the ovum, remaining unabsorbed and not causing hæmorrhage, may give rise to so much pain and inflammatory disturbance in and about the tube as to render the patient an invalid. It is scarcely necessary to further urge the advantages accruing

from the prompt performance of abdominal section, with ligation of vessels and extirpation of the tube, as contrasted with the uncertainties of treatment by electricity and the extremely dangerous certainties of delay.

II. *Tubal Abortion*.—The termination of ectopic gestation by abortion from the tube is possible only within the first eight weeks of gestation. Closure of the tube is ordinarily completed by the eighth week, after which abortion can not occur. In the majority of cases of ectopic gestation, terminated at a regularly recurring menstrual period—that is, at the fourth week of gestation—the route followed by the hæmorrhage and the ovum is through the unclosed abdominal ostium of the tube. During the early weeks of gestation the attachment of the ovum to the tube, through the villi of the chorion, is slight, rendering the life of the ovum most precarious.

Tubal, like uterine, abortion may be either complete or incomplete. When the abortion, in the very early weeks, is complete, the hæmorrhage should cease and should not recur. On the other hand, when the separation of the ovum has been only partially accomplished, hæmorrhage, as in incomplete uterine abortion, is prone to either continue or to recur. The ultimate termination, in an uncertain number of these cases, be the abortion complete or incomplete, is by absorption of the blood and ovum, with recovery of the patient. Convalescence is, however, frequently

prolonged through months or years, and is marked by many stormy and dangerous periods. At best, a diseased tube and many dense adhesions between the pelvic and abdominal organs are left to menace the patient throughout the remainder of her life. For the immediate, as well as the ultimate, comfort and safety of the patient, operation should be instituted in all cases of tubal abortion accompanied by appreciable hæmorrhage, whether circumscribed or free, recurrent or non-recurrent.

Tubal abortion, with sudden free hæmorrhage, can not be differentiated from intraperitoneal rupture until the abdomen has been opened and the tube examined. The earlier the abortion takes place, the less will be the amount of hæmorrhage, provided the abortion is complete. The hæmorrhage and consequent hæmatocele in early abortion will be *gradual*. The operative treatment of tubal abortion, being practically the same as that for primary intraperitoneal rupture, will be considered in connection with the latter.

III. *Primary Intraperitoneal Rupture*.—A comparatively small proportion of the cases of ectopic gestation are brought to the attention of the surgeon at the time of primary intraperitoneal rupture. At this time he is placed in a position where clear judgment, diagnostic ability, and rapidity in thought and action are most necessary. Presuming that the diagnosis of hæmorrhage from rupture of a pregnant tube is accepted, the first question requiring

positive answer relates to the direction of rupture. Is it intra or extra-peritoneal? A decision having been reached in favor of intraperitoneal rupture, immediate preparation for operation should be made. This must be followed in all cases of severe hæmorrhage by immediate abdominal section. The rule has been largely adopted of postponing operation until recovery from shock has occurred. In the strict observance of this rule many a life has been lost which might have been saved by an immediate operation during shock. If we consider the cause of the shock, the fallacy of the above rule will be evident. Shock in these cases means hæmorrhage, and hæmorrhage alone. To wait for recovery from shock may be to wait for the patient to die. Nature arrests the hæmorrhage when the heart only slightly feels the stimulus of the blood within its cavities. How much more surely, safely, and quickly can the surgeon arrest the hæmorrhage by timely applied ligature. I would urge the necessity and practicability of immediate operation regardless of the degree of shock. Every moment of delay may mean increased hæmorrhage, more profound shock, and the rapid approach of death. I grant that the hæmorrhage, even when severe, with the patient's life in greatest jeopardy, may cease, and the patient rally from the shock. On the other hand, recovery from shock may not occur, or if it does occur it may be followed, at a greater or less interval, by recurring and more severe hæmorrhage, and

the patient may die before operation can possibly be made. It is the treacherous uncertainties which surround these cases that should prompt us to refuse to be tricked into a false sense of security and a policy of delay.

In view of the almost miraculous recoveries which have followed operation in patients apparently dying from hæmorrhage, it is questionable whether a surgeon is justified in refusing operation in any case of intraperitoneal hæmorrhage while life still exists. It requires only a very short time to open the abdomen and to grasp and secure by snap forceps the bleeding structures. Hæmorrhage is thus arrested and an opportunity given to combat its effects. The heart's action must be maintained by stimulation. While heart stimulants, notably strychnia, should be freely employed hypodermically, the greatest stimulus to the heart is the distention of its cavities by blood, or a fluid of similar density. To produce and maintain this stimulation, the infusion of normal salt solution is strongly indicated. In this connection, I would call attention to an error of no mean importance frequently made, in the employment of the salt solution. In uncontrolled hæmorrhage the heart's action becomes progressively less effective from inability of the heart to contract firmly when its cavities are only partially filled with blood. This may result in an arrest of hæmorrhage from failure of the heart to propel the blood through the torn vessels. If in such a case,

hæmorrhage having nearly or quite ceased, a quantity of salt solution is thrown into the vessels, increasing the quantity of circulating fluid, the heart cavities again become filled with blood, the heart is stimulated to renewed activity, and it at once proceeds to force more blood though the ruptured vessels. Normal salt solution should never be infused into the circulation until the bleeding vessels have been secured. Exposure of the vessels into which the salt solution is to be thrown may be made by an assistant while the abdomen is being opened. Immediately after arresting hæmorrhage from the ruptured tube, the salt solution may be employed. Removal of the tube and such cleansing of the peritoneal cavity as may be advisable can then be done. Where rapidity of action is required, no route for approaching the tube is comparable with the abdominal.

IV. *Subsequent to Primary Intraperitoneal Rupture.*—Many cases of intraperitoneal rupture will be first seen days or weeks after the rupture. These are the cases attended by comparatively slight hæmorrhage. Although a few authenticated cases of complete absorption of the fœtus and blood, with restoration of health to the patient, have been reported, this termination must be looked upon as uncommon, and its occurrence should not be expected or depended upon. The remarks which I have made in reference to the necessity of operation in all cases of intraperitoneal hæmorrhage from tubal abortion apply with equal, or even greater, force to

hemorrhage from rupture of the tube. In the event of moderate hemorrhage, adhesions may form between the broad ligament, uterus, intestines, and omentum, and circumscribe the escaped blood. Lawson Tait denies that an hæmatocele may become so circumscribed, and holds that all cases described as such are, in fact, instances of rupture into the broad ligament with the formation of an extraperitoneal hæmatocele, with subsequent and consequent stripping up of the peritonæum from the pelvic wall, rectum, and uterus. I must differ most decidedly from this view. Intraperitoneal hæmatocele from tubal rupture may, I believe, become circumscribed as readily as one resulting from tubal abortion. The conditions are identical, except that in the one instance the product of impregnation escapes by a rupture of the tube, while in the other it escapes through the unclosed abdominal ostium. In the case of tubal abortion which I had the honor to present at the last meeting of this Society the hemorrhage was circumscribed. Had the case been one of hæmorrhage into the broad ligament from rupture, the fimbriated extremity of the tube could not have opened into the circumscribed cavity. In this case, however, the patent abdominal ostium of the tube opened directly into the cavity of the hæmatocele, while the fimbriae of the tube were spread out on the inner surface of the adventitious sac. Bland Sutton accepts, without question, the possibility of the hæmatocele becoming so circumscribed.

The decision of this question has a somewhat important bearing upon diagnosis and treatment. If, as Mr. Tait contends, all circumscribed hæmorrhages within the pelvis are beneath the broad ligament, the treatment would be expectant, operation not being performed except in case of recurring hæmorrhage, continued life and growth of the fetus, or suppuration of the hæmatoma. On the other hand, recognizing that an intraperitoneal hæmatocele may become circumscribed, it becomes necessary, in the presence of a distinctly limited hæmorrhage, to establish a differential diagnosis between circumscribed intraperitoneal hæmatocele and broad-ligament hæmatoma. While a broad-ligament hæmatoma should, in the ordinary course of events, be left undisturbed, an intraperitoneal hæmatocele must, in the great majority of cases, be subjected to operation.

In operating for circumscribed intraperitoneal hæmorrhage, the abdominal route offers far better opportunities for clean and thorough work than does the vaginal. The adhesions cannot be safely dealt with through the vagina, nor can the diseased structures be completely removed without jeopardizing the integrity of the intestines.

V. *Primary Extraperitoneal Rupture*.—Operation is seldom, if ever, called for at the time of, or immediately following, extraperitoneal rupture. The hæmorrhage takes place, not into a cavity, but among the tissues, which serve as limiting walls, and prevent sudden, excessive hæm-

orrhage. Such cases demand careful investigation to ascertain, as accurately as possible for future comparison, the extent of the hæmorrhage and the relations and size of the resultant tumor. Examinations must be subsequently made at short intervals to determine whether the hæmatoma is increasing or diminishing.

VI. *Subsequent to Primary Extra-peritoneal Rupture; Fœtus Living.*—

If repeated examinations demonstrate a progressive enlargement of the hæmatoma, a presumptive diagnosis of continued life and development of the fœtus is warranted if the fœtus can be made out, and its growth demonstrated, the diagnosis becomes positive. In the event of the continued life of the fœtus, its removal by abdominal section should be accomplished without delay. Abdominal section for removal of the fœtus before the completion of the fourth month of gestation, while difficult and hazardous, can not compare, either in difficulty or hazard, with the operation when performed after this time. Owing to the growth of the placenta and the encroachment of the sac upon the surrounding structures, it then becomes one of the most trying and dangerous operations known to surgery. Secondary intraperitoneal rupture may take place at any time, and, if the placenta lies above the fœtus and is torn or partially dislodged, a most profuse hæmorrhage, may occur, and the patient may die before measures for her relief can be adopted. To save the mother from both the extreme dan-

gers of a late operation and the frequently fatal results of a secondary intraperitoneal rupture, operation should be at once performed when the continued development of the child is demonstrated.

In operation prior to the fifth month, after ligation of the ovarian artery, incision of the sac, and removal of the fœtus, a choice must be made between a number of procedures, depending upon the nature of the case. Much will depend upon the condition of the sac and the location of the placenta. The most satisfactory and clean procedure, and the one especially indicated in an early operation, is the stripping of the placenta and membranes from the sac, ligation of bleeding points, and quilting together of the layers of the broad ligament. This method, so far as it relates to the removal of the placenta, becomes a necessity, in either an early or late operation, when the placenta lies above the fœtus and is cut or dislodged during operation.

When the sac is not too friable, and the hæmorrhage, after removal of the placenta and membranes, can not be arrested by ligation of the vessels, or when the hæmorrhage is too free to permit of search for, and ligation of, bleeding points, the sac should be stitched to the edges of the abdominal incision and packed with iodoform gauze.

If the placenta is situated below the fœtus, has an extensive and firm attachment, and its separation promises to be attended with severe hæm-

orrhage, the sac may be stitched to the edges of the incision, the foetus removed, and the placenta left *in situ*. The sac must then be packed with iodoform gauze, and extreme precautions must be taken to prevent infection of the placenta. On the fourth or fifth day, if not earlier indicated by evidences of decomposition of the placenta, the gauze should be withdrawn and the placenta removed. Its removal at this time can usually be accomplished without much hæmorrhage. If the operator prefers to assume the risks of suppuration of the placenta, he may, after removal of the foetus, cut the cord close to the placenta and leave the latter within the sac, closing the abdominal incision without drainage in the hope of absorption of the placenta taking place. I can not but look upon this procedure as both unsurgical and dangerous.

After the fourth month, owing to the increased size and extensive attachments of the placenta, and to the stripping up of the peritonæum from off the uterus, rectum, bladder, and abdominal wall, operation becomes most formidable. Here also much depends upon the location of the placenta as regards that of the foetus. If the placenta be below the foetus and attached to the pelvic floor, the foetus may be removed with but slight hæmorrhage. If the placenta is so favorably located it may be left *in situ* for four or five days, when its removal can be much more readily and safely accomplished. When situated above the foetus, and cut or torn in

opening the sac, the placenta must be quickly and boldly detached and hæmorrhage controlled by plugging the sac with gauze and by the ligation of the vessels that can be reached. When operating in the late months, an extraperitoneal incision into the sac is advisable whenever possible, unless the complete removal of the foetus, placenta, and sac has been decided upon.

This latter procedure, which has been performed in less than a score of cases, while most difficult, certainly more nearly approaches the ideal than does any operation which contemplates leaving the placenta *in situ* even for a few days. The underlying principle of this procedure consists in considering the foetal sac as an intraligamentary cyst and treating it according to the methods adopted for this condition. After ligation of the ovarian artery, a free incision is made through the peritoneum of the broad ligament, care being taken not to incise the foetal sac. Enucleation of the sac is then effected. Hæmorrhage from the placental attachment, while free, is not ordinarily excessive, and can be controlled by gauze packing. When the foetal sac is ruptured during its enucleation, hæmorrhage is usually severe, and must be met by compression of the abdominal aorta and most rapid enucleation. After enucleation, gauze must be firmly packed against all bleeding points. This method of operation, although it promises better results, can not be advocated at the present time, as it has been employed in so limited a

number of cases.

VII. *Secondary Intraperitoneal Rupture.*—When this occurs soon after primary extraperitoneal rupture, the immediate necessity for and the method of treatment indicated are practically the same as in primary intraperitoneal rupture. In late secondary rupture the methods advocated for the management of late cases of extraperitoneal gestation without rupture are to be employed. Immediate removal of the placenta is, however, generally a necessity.

VIII. *Subsequent to Death of the Fœtus.*—A dead fœtus, especially if death has occurred in the early

months, may remain safely sepultured within the tissues for months or years without the production of dangerous symptoms. Sooner or later, in the majority of cases, operation must be instituted for its removal. A fœtus which has remained quietly within the broad ligament for years may become infected, suppurate, and have to be removed. The further advanced the gestation at the time of death, the greater becomes the probability of subsequent infection and suppuration of the fœtus. Vaginal incision is preferable to abdominal section in these cases of suppuration.

Diagnosis of Ectopic Pregnancy.*

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* Abstract of paper read before the Chicago Gynecological Society, April 17, 1896.

All practitioners of medicine, both general and special, now keep in mind the possibility of the occurrence of ectopic gestation, and thus many cases are discovered which were formerly overlooked. The fact that hæmatocele and hæmatoma are almost always due to ectopic pregnancy is now generally recognized as such by specialists, and is becoming universally understood.

The increased interest in the subject has improved diagnosis. On the

other hand, the proposition to curette the uterus in order to obtain uterine decidua for microscopic examination which was made a few years ago and which, it was hoped, would prove a great addition to our diagnostic resources, has been somewhat disappointing.

With the supposition that a uterine decidua always existed in pregnancy, which could be easily demonstrated by the microscope, and thus prove the existence of pregnancy, and that the presence of decidua and the absence of fœtal membranes in

the uterus proved the existence of ectopic pregnancy, curettage in suspected cases seemed a most reasonable procedure. The fears were urged that curettage would provoke uterine contractions and contractions of the tubal sac do not seem to have been realized, for curettage has proved no more dangerous than bimanual palpation. The danger of producing abortion in intra-uterine pregnancy is shared by the introduction of the sound to determine the condition of the uterine cavity. This danger one is fully justified in incurring on account of the great importance of establishing a diagnosis. The results of the procedure, however, have been disappointing. Wyder, the advocate of the method, failed in his first case. Martin has failed twelve times. In five cases he did not find decidual tissues. The cases were nevertheless operated on and tubal pregnancy found. In other cases tissues that were considered decidual were found in cases of gonorrhœal salpingitis.

This failure to find characteristic decidual tissue can not be due to absence of those decidual changes of the uterine mucous membrane first described by Ercolani, and since confirmed by so many other observers. It is more probably explained by the occurrence of degenerative changes in the uterine decidual membrane which are not yet fully understood. The various descriptions of this membrane do not correspond in all respects. The investigations of Dobbert are among the latest, and his re-

sults agree substantially with those of Langhans and others in showing three layers—the superficial compact layer of decidual cells without glands, the middle spongy layer with dilated gland spaces and little connective tissue, and the deeper layer with the base of the glands and comparatively unchanged connective tissue cells. After spontaneous expulsion of the decidual membrane only patches of the inner layer were found, which of course one might easily fail to recognize as decidual. The superficial and glandular epithelium of the outer layers sometimes disappears more or less completely. When present, the cells are shorter and more cubical. The transformation of the uterine membrane into a decidual membrane takes place more rapidly when the fœtus is located near the uterus, as in an interstitial pregnancy. The change may not be as great in an ampullar pregnancy of three months as in an interstitial pregnancy of one and a half months. Certain changes of a degenerative nature sometimes occur in the superficial decidual layers, even when they remain *in situ*, which tend to render them less recognizable and to lessen their diagnostic value. These changes have not been sufficiently studied, and the fact remains that inability to find decidual tissue is not proof of the absence of pregnancy.

Can decidual tissue exist, however, without the presence of pregnancy? The claim that was made by C. Ruge some years ago, that decidual cells

are sometimes found in cases of endometritis, has not been recently supported, and the three cases of Ruge, Leopold, and Overlach still stand alone. The criticism of Wyder has shown that in none of these cases was pregnancy absolutely excluded. Attention has also been recently called to the fact that decidual cells may penetrate the muscularis and be found some weeks or even months after the close of pregnancy. I recall a case of this kind reported by Chiari. Therefore, in the absence of other confirmatory observations, I think that the cases of Ruge and Overlach can no longer be used to controvert the long-established doctrine that the production of decidual cells occurs only in pregnancy. There may be more uncertainty concerning the changes in the glandular and superficial epithelium. In general it must be admitted that the presence of decidual membrane is proof of pregnancy. Of course the presence of foetal structures—for example, chorionic villi—shows uterine gravidity and so speaks against extra-uterine gestation.

It remains true, however, that this proposed method of making a sure diagnosis of extra-uterine pregnancy has proved to some extent a failure, and the uncertainty in diagnosis which still exists is well illustrated by the statistics of von Schrenck, who found only two hundred and twenty-one correct diagnoses out of six hundred and ten cases.

In considering the subject of differential diagnosis it will be convenient

to make two periods of ectopic gestation—namely, the first four months and the later months. The first period is the most important, since few cases progress beyond it. In the first period the diagnosis can never be absolute unless the presence of an undoubted decidua graviditatis can be found in the uterus with no chorionic elements. In the second period an absolute diagnosis can be made from the foetal heart sounds and the movements of the foetal body.

Diagnosis must deal with the changes produced by pregnancy in various locations. These we classify as interstitial or tubo-uterine: isthmie: ampullary; infundibular, or tubo-abdominal, or tubo-ovarian: and cornual. We must also observe the changes produced by extra-peritoneal and intra-peritoneal rupture of the fruit sac, complete and incomplete tubal abortion, the resulting hæmatocele and hæmatoma, and the death of the fruit followed by absorption, maceration, mummification, calcification, or suppuration.

The diagnosis is made by study of the symptoms and by physical examination. The chief symptoms of importance in diagnosis are irregularity of menstruation: pain: effects of internal hæmorrhage; milk secretion: urinary manifestations, (*a*) vesical, (*b*) renal: bowel and reflex manifestations.

Nothing need be said of reflex symptoms, such as vomiting, etc., as they do not differ essentially, as regards severity or frequency of occurrence, with those of normal preg-

nancy, and hence are of value only in determining the presence of pregnancy.

Mechanical obstruction of the bowel may occur when the fruit sac is located in the pouch of Douglas, but is more liable to occur when a perirectal hæmatocele exists.

Painful micturition and other bladder symptoms are not more common before rupture of the sac than in intra-uterine pregnancy: after rupture they depend on the amount of the hæmorrhage and the resultant pressure. They have no special diagnostic value.

Eclampsia and severe kidney disease are so frequently noticed as to be of some diagnostic significance.

The milk secretion has no diagnostic value except in determining the existence of pregnancy.

The symptoms due to hæmorrhage, such as shock, dyspnoea, etc., are rarely absent after rupture, and indicate by their severity the amount of hæmorrhage. These symptoms, together with those of pain and irregularity of menstruation, are by far the most valuable of all the symptoms, and generally raise the first suspicion of the condition.

Pain in the first period, aside from the pressure symptoms caused by the growing tumor or hæmatocele, is generally of a colicky character, and is probably due chiefly to uterine contractions. In connection with the discharge of pieces of decidual membrane from the uterus this symptom is very important. Rupture of the fruit sac is usually, but not always, ac-

companied by pain. Viet and Martin call attention to the fact that recurring pains in the side, accompanied by symptoms of hæmorrhage, indicate tubal abortion. After the fourth month abnormal location of the child may give rise to pain. Peritonitis may also be present and cause pain.

Persistence of regular menstruation is rare. Amenorrhœa was found by Fraenkel in twenty-six out of fifty-four cases, and by Martin in thirty-two out of fifty-seven. In nearly half of the cases menstruation occurs at irregular intervals, varying in quantity from a few drops to profuse hæmorrhage. The menstrual discharge often contains pieces of decidua which may be of great diagnostic value.

In determining the existence of ectopic pregnancy, physical examination is of prime importance in all stages, while in the first period before rupture of the sac, it is almost the only means of diagnosis. I include under physical examination not only bimanual exploration, but also the use of the finger, sound, and curette for exploring the uterine cavity.

The importance of physical examination is so great that all aids to its efficiency should be employed. One of the most valuable aids is narcosis, which should never be omitted when a satisfactory examination can not otherwise be made.

I must, however, call special attention to the dangers of all physical examinations, including bimanual palpation, sounding, curetting. Numerous cases

have been reported where rupture of the sac has occurred during an examination. The physical examination is so important that this danger must be risked, but it is only right that before undertaking it preparation should always be made for immediate operation if indicated. Anæsthesia is a source of danger on account of the vomiting and struggling of the patient.

The necessity of preparation for immediate operation before beginning an examination has never been sufficiently emphasized. The danger from examination would be realized if all the patients who have died and all the cases of ectopic pregnancy in which rupture has occurred during examination were collected. Such a collection would be impossible, because data are rarely given. I know of one fatal case, and have myself produced a rupture during examination.

The uterine sound is employed generally in the second period to find out whether or not the uterus is empty. It is also used in suspected two-horned uterus to determine the patency of the canal connecting the uterine cavities. It is not necessary to call attention to the danger of perforating the uterine wall. The risk of producing an abortion is justifiable if the diagnosis between extra-uterine and intra-uterine pregnancy can not otherwise be made.

Differential Diagnosis between Intra- and Extra-uterine Pregnancy.—While in all other cases the differential diagnosis is a problem of

the first period, the chief difficulties in this case are in the second period. Before the fifth month the uterus may generally be distinguished from the ectopic fruit sac by bimanual palpation. Before rupture of the fruit sac the difficulties arise only in cases of interstitial pregnancy and cornual pregnancy. When the egg lies in the middle or outer end of the tube the determination of the fruit sac as a tumor, independent of the uterus, is easy. A rudimentary horn is also frequently separated from the developed part of the uterus by so long a pedicle that it is easily found to be apparently independent of the uterine body. In such a case it is of no importance that the cornual pregnancy can not be differentiated from a graviditas isthmica or graviditas ampullaris, for the treatment is the same in all cases. In other cases the tumor of a cornual pregnancy, like that of an interstitial gestation, can not be distinguished from a gravid uterus by palpation. The insertion of the round ligament into the external surface of the tumor sac can very rarely be determined by physical examination. A corresponding irregularity in the shape of the uterus would not excite attention. Before rupture, symptoms of pain and collapse are not present. The only thing that can call attention to an interstitial or cornual pregnancy before rupture is irregularity of menstruation. Should such irregularity, together with the discharge of decidua, lead to the suspicion of an abnormally located egg, the exploration of the

uterine cavity by the finger or sound is indicated. The especial importance of an early diagnosis of interstitial pregnancy is evident, because the rupture of the sac leads to the most dangerous form of hæmorrhage. The rarity of this condition is an element in diagnosis. Martin found only one case out of ninety-one.

After rupture of the sac the symptoms of pain and shock, in addition to the character of the frequent uterine discharge and the physical examination, make the differential diagnosis between intra- and extra-uterine pregnancy comparatively easy.

It is also not difficult to establish the existence of a recent retro-uterine hæmatocele or of a hæmatoma by physical examination. Only in cases where the uterus is surrounded by large quantities of blood is the distinguishing of its contour difficult. Here the symptoms are sufficient to make such a differentiation superfluous.

Many mistakes have been made in the differential diagnosis between extra- and intra-uterine gestation in the second period—that is, after the fourth month—and these mistakes are the most annoying. Should such a mistake lead to a laparotomy, and the discovery of a normally implanted egg, it would be a mistake that could not be hidden. To distinguish the uterus from the fruit sac by palpation is often impossible, because the uterus changes so that it feels like a part of the wall of the sac. The shape of the sac has been mentioned as a

diagnostic sign, but this is evidently of no value. The more lateral location of the tumor holds true only till the sixth month. The same may be said of the value of the other diagnostic points, such as the statements that the foetal parts may be better felt and the heart tones better heard through an extra-uterine sac. The unusual pressure and the kidney symptoms are to be remembered. More pain may be present, which may be due to displacement of organs and of the peritoneum, and peritonitis may even occur, but it is remarkable how little subjective disturbance from this cause is present as a rule. The history of symptoms and the irregular menstruation are of some value. In doubtful cases the use of the sound is indicated and justifiable.

Differential Diagnosis between Extra-uterine Pregnancy and a Retroflexed, Enlarged, or Gravid Uterus.—A number of mistakes of this kind are reported each year. Many of them are serious, for they often lead to efforts to replace the supposed dislocated uterus, and consequent rupture of the abnormal fruit sac. Only the first period of pregnancy is here concerned.

Before rupture, the condition which simulates a retroflexed uterus is a tubal sac lying in the pouch of Douglas. Careful bimanual examination in narcosis should be sufficient to distinguish the condition, although it must be admitted that a long cervix in the case of a retroflexed uterus often feels like a small uterine body lying on a post-uterine tumor. Re-

peated examinations should clear up the diagnosis in most cases without the use of the sound.

After rupture of the sac the retro-uterine hæmatocele must be considered. Here the history and symptoms of hæmorrhage, with the examination, are sufficient to clear up the diagnosis.

Differential Diagnosis between Subserous Myomata of the Uterus and Ectopic Pregnancy.—Here also only the first period is concerned. Before rupture, interstitial and cornual pregnancy and the isthmic and ampullar varieties of tubal pregnancy are to be differentiated from a more or less pediculated myoma. The consistence of the tumor is generally sufficient to establish the diagnosis. If not, the decidua can be examined.

Differential Diagnosis between Tumors of the Adnexa and Ectopic Pregnancy.—Here the difficulties are also in the first period. Before rupture of the fruit sac, in the absence of symptoms of pregnancy, the diagnosis by bimanual palpation may be difficult. A gravid tube feels very much like a hydro- or pyosalpinx. Veit says that the tumor of pregnancy is softer and not so elastic as a cyst of the tube. The enlargement of the uterus in ectopic pregnancy is not to be forgotten. The examination of the uterine decidua will probably clear up the diagnosis. The greatest difficulties arise when there is a concurrent extra- and intra-uterine gestation. Such a condition is not very rare, probably not more uncommon than twin pregnancies, which

Churchill estimates as one in ninety. Von Schrenck reports forty-three cases in which a correct diagnosis was made but twice. Here all symptoms, as well as examination of the uterine decidua, are absolutely without diagnostic value, if not misleading, before rupture of the fruit sac.

After rupture, the differential diagnosis is not difficult, for the symptoms and the presence of blood in the pelvis are sufficient to determine the existence of the condition. The concurrent presence of a sacosalpinx and a tubal pregnancy is not rare. As the therapy is the same in both cases, the impossibility of certainly diagnosing this condition is not of so much consequence.

It is not necessary to speak of the differential diagnosis between ectopic pregnancy and hæmatocele. Practically, all cases of hæmatocele are due to ruptured gravid tubes. The elaborate theories and classifications of Bernutz and others of former years are not supported by observations, but are, on the contrary, opposed to the results of all recent investigations. Hence, the attempt to distinguish between hæmatoceles due to different causes may well be given up.

In closing this necessarily brief synopsis of the chief diagnostic points of ectopic pregnancy, I will simply repeat that the recognition of the comparative frequent occurrence and great importance of ectopic pregnancy has done much toward preventing the neglect of the cases which formerly obtained. The diagnosis never can and never will be made with certainty

in all cases, and must depend, as in the diagnosis of other pathological conditions, on the proper estimation of various symptoms, among which

the most important are pain, irregularity of menstruations, and symptoms of internal hæmorrhage, and upon skillful physical examination.

REVIEW OF GYNÆCOLOGY.

CHOLECYSTECTOMY AND OÖPHORECTOMY.

Dr. Bernard Gordon reports a case operated upon by him at the Beth Israel Hospital, New York City.

“Patient was thirty-two years of age. She began to menstruate at fifteen years and continued regularly every four weeks without pain, the flow lasting from seven to eight days. She was married at the age of eighteen and had five children. The last child was born four years ago. About fourteen years ago she had an attack of severe colic which she located at the epigastrium. This lasted for about fifteen minutes. She had recurring attacks every three or four weeks for two years, and after that she never had another. She has suffered attacks of nausea and vertigo, which continued until the operation. About a year and a half ago she began to feel pain in both ovarian regions, more marked on the right side. She had also occasional chills. Her last menstruation, which was about eight days before admission into the hospital, was accompanied by severe pain.

On inspection of the abdomen a distinct bulging was apparent near the right inguinal region, immediately above the os pubis. Examining bimanually, the left ovary could be felt enlarged to about three or

four times the normal size: its consistency and shape conveying the impression of cystic degeneration. The tube on the same side was normal. The uterus in its entirety was displaced anteriorly and to the left, anteflexed, soft, and somewhat movable. On the right side a large, round-shaped cyst could be felt. The upper border was indistinct and could not be mapped out, as the examination was made gently in order to avoid rupture. It occupied about half of the pelvic cavity, displacing the uterus to the left and anteriorly. Behind the uterus, wedged in near the cyst, was the right ovary, slightly enlarged. The nature of the cyst and its origin were not determined. It was considered pelvic from its presence there.

She was operated, the left ovary and the cyst which proved to be the distended gall-bladder, removed.

The persistent vomiting which followed the operation was checked after four days and the patient made a good recovery.”

This case is especially interesting for the following four reasons: 1. Judging by the history of the case, the patient began to suffer cholelithiasis about fourteen years ago, and after the lapse of two years, during which time two stones entered the gall-bladder and a third obstructed

the cystic duct, an equilibrium was established by nature in some way unknown to me. In other words, the patient had nothing to complain of. So it took fully twelve years for that bladder to become so much distended by its own secretion. There are three kinds of cases of cholelithiasis requiring operative interference: (a) Obstruction in the cystic duct, where the bladder becomes much distended, but slowly by its own secretion, and no jaundice is present. (b) Obstruction in the common duct, where the gall-bladder becomes rapidly distended by bile, and jaundice is present. (c) Obstruction in the hepatic duct, causing atrophy of the gall-bladder and severe jaundice. It is evident that the above described case belongs to the first class.

Now I will mention in brief the few methods of operative interference. 1. *Cholecystendylsis*, described by Courvoisier. The incision is made in the region of the gall-bladder; the bladder is then opened; the stones removed; the rent closed by sutures; the fundus is attached to the abdominal incision, which is then closed. 2. *Cholecystostomy*: This is similar to the above method, except that a fistulous communication is left between the gall-bladder and the exterior. Dr. Mayo Robson recommends this method, and it is most generally used by surgeons. 3. *Cholecystenterostomy*: Dr. Murphy recommends this operation, which he performed on seventeen cases with great success. He connects the gall-bladder with the highest possible part of the intestine by means of the button known by his name. 4. *Cholecystectomy* is the operation of removing or excising the gall-bladder. This is done in cases where there is no hope for the gall-bladder to return to its original function. For instance,

in the above-described case the bladder was distended for twelve years, and to such an enormous extent that it would have been impossible for it to resume its natural function.

II. The second point of interest in this case is that both ovaries were diseased—one with cystic degeneration and the other with suppuration—while neither the tubes nor the uterus was affected.

III. The patient's life was in imminent danger on account of the pointing abscess in the left ovary, which might have ruptured any moment and produced a general peritonitis. Still the patient complained very little of pain in the left side, and would not have agreed to an operation if not for the pressure and pain caused by the gall-bladder on the right side displacing the uterus and adnexa to the left.

IV. The gall-bladder was so enormously distended as to reach into the pelvic cavity.—*American Medico-Surgical Bulletin*, June 27, 1896.

OVARIOTOMY.

Sir William Stokes in a paper read before the Surgical Section of the Royal Academy of Medicine in Ireland, May 1, 1896, presented notes based on the results obtained in the last twelve cases on which he performed ovariectomy. Of these twelve, ten were brought to a successful issue giving a percentage of over eighty-three. He says: "It must, I think, be admitted that this result is on the whole encouraging, particularly having regard to the fact that the majority of the operations were performed in hospital structures of considerable antiquity and some of them before many of the modern appliances and devices for promoting surgical cleanliness, now constantly in use by every conscientious surgeon, were introduced

and when the methods of maintaining wound asepticism during and subsequent to the operation were not as well understood as at present—methods which are known now to be so essential and without which the surgeon is seriously handicapped in his efforts to bring his operative cases to a satisfactory termination.

I feel confident that one of the main causes of the success that, as a rule, now happily attends the operation of ovariectomy is the attention that careful surgeons pay to the preparatory treatment of the patient. This according to Prof. Ashton of Philadelphia should be carried out systematically for at least some days previously to the operation and consists of "rest, bathing, care of the bowels, regulation of the diet, special antiseptic preparations immediately before the operation, and precautions against shock and vomiting." During this time the patient should be kept in bed excepting of course when taking a daily bath, the water of which should be impregnated with an antiseptic such as eucalyptus.

The frequent irrigation of the vagina with corrosive sublimate solution (1-4000) is advocated by some surgeons, but is a practice that up to this I have not had resource to. In the morning of the operation a thorough surgical cleansing of the abdomen is carefully carried out with soap, creolin and ether, and a piece of lint folded twice and soaked in a solution of carbolic acid (1-40) is laid over the field of operation.

Another element in the preparatory treatment that is strongly advocated by Ashton is the hypodermic injection of sulph of strychnine (1-15 gr.) three times daily. According to him this drug has a signal effect in promoting the occurrence, or at all events diminishing post operation shock.

The hypodermic administration immediately preceding the operation of morphine (1-6 gr.) is, I think to be commended, and unless some decided contra-indication exists, chloroform is the best and safest anæsthetic, being the one least likely to be attended with post-operation nausea and vomiting, the disturbance caused by which militates so strongly against the satisfactory progress of the case. The diet for some days previous to the operation should be of such a character as to leave the bowels as empty as possible at the time of the operation. This should be essentially of a sloppy character and be coupled with a complete abstention from alcohol in any form.

From my experience I should be disposed to advocate a tolerably free rather than a very limited abdominal incision. The length of the incision does not materially influence the results.

The number and firmness of adhesions do not appear to me to militate against the ultimate success of the operation, always provided they be properly dealt with.

All the firmer and older adhesions should be carefully ligatured by chromicised or carbolized catgut previously rendered beyond all suspicion aseptic, and then divided by scissors.

In dealing with the pedicle, the ligature which may be employed in a variety of ways is now universally adopted and the material—strong silk—asepticised above suspicion.

The objections urged against the ligature have been based on the alleged danger of sloughing of the stump. But certain it is, that if the ligature or ligatures be properly applied, sloughing of the stump is a calamity of which we need not be very apprehensive.

As regards post-operation treatment, much must be left to the surgeon's discretion, in the exercise of which he will be guided by experience, and his own instinctive intuition of what is in accordance with the dictates of surgical common sense.—*The Dublin Journal of Medical Science*, July, 1896.

VENTRO-FIXATION OR VENTRO-SUSPENSION OF UTERUS.

At the meeting of the British Gynaecological Society, March 12, 1896, Dr. Mayo Robson, F.R.C.S., said in part:

"This subject seems to me an exceedingly important one in that it deals with a method of treatment, the position of which is not yet fixed in gynaecological practice, since these operations are as vigorously defended by many able gynaecologists as they are denounced as unnecessary and unsatisfactory by others.

As is usually the case the truth probably lies between the two extremes. In estimating the value of operations of expediency which are done for the purpose of giving relief to suffering and not for the saving of life, we have to consider them from four points of view: First, as to their necessity; next as to their safety; thirdly, as to their efficiency; and fourthly as to whether they leave the patient less fitted for life in other ways.

In discussing the subject of ventro-fixation or of ventro-suspension of the uterus, we are considering operations of expediency undertaken for the relief of symptoms dependent upon retroflexion or retroversion of the uterus with or without adhesions, or on severe prolapsus uteri, all of which, though not placing life in jeopardy, may make existence so wretched as to lead their subjects to

seek some relief even if attended with a little risk.

In answering the question of necessity the gynaecological surgeon must satisfy himself that all minor measures have been first tried and that every apparent complication has been corrected without giving relief.

In answer to the question: Is it safe? I cannot see why if careful asepsis is observed and if ordinary skill be exercised, there should be any risk even when, as in hysteror-rhaphy, the peritoneum has to be opened. In Alexander's operation, when the serous cavity is not interfered with, I think we can confidently say that the operation is devoid of risk.

As to the third question:—There can be no doubt about the immediate relief to pain and pelvic distress or as to the beneficial effect on the patient's general health in nearly every case. I am able to vouch for the permanent beneficial effects of the operation on some of my patients as shown by the complete restoration to health, the resumption of marital relations previously impossible on account of dyspareunia, the loss of all pelvic discomfort, and the absence of the need of further medical attention.

Fourthly—Do these operations leave a patient in any way less fitted for life?

After any abdominal section ventral hernia is a possibility. But by carefully suturing the parietes layer by layer, and by careful treatment, there is very little to fear. The danger of intestinal obstruction from the incarceration or strangulation of a knuckle of the bowel by an adventitious band left between the abdominal wall and the uterus is a possibility. So far no case of this kind has been reported.

Practically, there are two classes of operations to be taken into con-

sideration: the one extra-peritoneal, consisting of Alexander's operation or its modifications, the other intra-peritoneal, in which an abdominal section forms a necessary preliminary to the hysterorrhaphy.

Perhaps in some cases of prolapse of the ovaries with a backward displacement of the uterus, where any mechanical support tends to irritate, and where rest and general treatment fail to benefit, Alexander's operation may be called for and may prove serviceable. On the whole I think that this operation has a decidedly limited field of usefulness, much more so in fact, than in theory one might be led to expect.

Where it is necessary to lift up and fix forward the uterus, hysterorrhaphy or ventro-fixation is undoubtedly the most effectual method and where there are adhesions in the pelvis caused by appendage disease or by pelvic peritonitis it may be the only effectual means of giving relief.

With the results of this operation in retroflexion or version with adhesions I have been very gratified.

From the foregoing remarks it will be seen: (1) That, in my opinion, in the treatment of retroflexion or retroversion, after the failure of other means, ventro-fixation offers a means of treatment leading in so many cases to permanent relief or cure, that the operation is one likely to have a permanent place in surgery.

(2) That the necessity for the operation usually only arises where adhesions are present, other cases with few exceptions generally yielding to less heroic measures, or, if operation be thought needful, to the less serious procedure of shortening the round ligaments.

(3) That in the treatment of extreme prolapse or procidentia uteri, ventro-fixation or ventro-suspension without other supplementary

operative procedures usually results in disappointment, but that in certain cases when supplemented by colporrhaphy and perinæorrhaphy, the results are sufficiently good to encourage the gynæcologist to advise operation where all the ordinary means have failed to give sufficient relief. —*The British Gynæcological Journal*, May, 1896.

ELECTRIC TREATMENT OF UTERINE FIBROIDS.

Dr. L. R. Régulier suggests as indications for such electric treatment.

1. Whenever a fibroid whether or not accompanied by metrorrhagia exists at the same time with appendages which are either wholly healthy or at least show no perceptible sign of inflammation such as cyst, pus or blood. In case of hæmorrhages, electric treatment is to be preferred to palliative operations such as curettage, which do not give particularly definite results. There are however, three classes of hæmorrhages which require radical interference: First, in case of the large interstitial fibroids in which the dilated and indurated blood vessels open freely on the surface of a uterine mucosa which is atrophied and degenerated. Secondly, when the hæmorrhage is connected with the presence of a pedunculated fibroid entirely enclosed in the uterine cavity.

But electric treatment is perfectly adapted to two kinds of cases.

First when we have to do with tumors of small size, sufficient however to cause difficulty in walking, trouble in micturation, pains, a feeling of heaviness in the abdomen or constipation.

Second, in case of any large or even multiple tumors if the adnexa are in good condition.

Operation in such cases exposes

the patients to very serious and oftentimes even to mortal danger. But from electric treatment if sufficiently prolonged, we can secure a cessation of the hæmorrhages and such a diminution of the tumor as to stop the discomfort and difficulty.

Soft fibroids or those but slightly firm show most quickly the good effects of electric treatment and it is not unusual to see them diminish or disappear in a relatively inconsiderable number of treatments.

In the cases of soft fibroids attached by a large and very vascular pedicle which have shown such a large rate of mortality when treated by the method of slow crushing and for which today we must do a complete hysterectomy, electric treatment rapidly checks the trophic functions and produces a rapid necrosis. However one must be specially careful to avoid all sources of septic infection and subject the patients to rigorous antiseptics during the treatment and in the intervals between treatments.

When the fibroid is very hard it resists much more the electrolytic action of the current and for two reasons: first, it is less vascular and the nutrition is consequently more slow; second, its resistance to the electric current is much greater.

We then, to accomplish anything, use stronger currents than at the first and give the patient all that her feelings allow, but at least 150 to 200 milliamperes. In these cases the application ought to be very brief, three to five minutes, at most, and repeated rather frequently, three times a week on the average.

The chances of success vary with the situation of the tumor. If it projects from the side of the uterine cavity, treatment by galvano-chemical intra uterine cauterizations, suitably applied, offers the best chances of cure. If it is intra-mural, as is most frequent, and at the same time is the condition when the uterus undergoes the greatest distention, the most deformity and increase in its cavity, the electric current is particularly advantageous. These are the cases where hysterectomy is least favorable.

Sub-peritoneal fibroids are least accessible to the different electric methods since we cannot employ the galvano-puncture. But in most of these cases we may fairly expect lessening or disappearance of the accompanying symptoms and that means indeed, health for patients of this kind. *Annales de Gynécologie et d'Obstétrique*, June, 1896.

BOOK REVIEWS.

(All Exchanges and Books for Review should be sent to Dr. C. G. CUMSTON, 871 Beacon St., Boston.)

MANUAL OF ANATOMY. By IRVING S. HAYNES. Ph. B., M. D. Adjunct Professor of Anatomy, University of New York, etc. Philadelphia, 1896. W. B. Saunders, Publisher. Price \$2.50 net.

A very practical and good treatise, well illustrated with numerous half-tone illustrations and diagrams which are original and of rare excellence. We highly commend the work.

GYNÆCOLOGY, QUIZ-COMPENDS OF.
By W. H. WELLS, M. D. Adjunct Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic etc., Philadelphia, 1896. P. Blakiston, Son & Co., Publishers, Price \$1.00.

This is one of the Messrs. Blakiston's well known series of compends and is a very fair résumé of the present state of gynæcology. It will be found useful to both student and practitioner.

A COMPEND OF DISEASES OF CHILDREN ESPECIALLY ADAPTED FOR THE USE OF MEDICAL STUDENTS.
By MARCUS P. HATFIELD, A. M.,

M. D. Second edition. Thoroughly revised, with a colored plate. Philadelphia. P. Blakiston, Son & Co. 1896. Price 80 cents in cloth.

The second edition of this valuable little book, resembles closely the first and merits freely the high praise which we gave to that. Compact, systematic, practical, it is wonderfully complete in its list of subjects and detailed treatment. As a basis for the student's further study of cases and more extensive reading it is excellent. The practicing physician, too, will find it a handy little volume for desk or bag, always ready to fill in the annoying gaps of memory in matters of detail in diagnosis and treatment.

ANNALS

—OF—

GYNÆCOLOGY AND PÆDIATRY.

DEPARTMENT OF PÆDIATRY.

Conducted by ROBERT W. HASTINGS, A.M., M.D.

ORIGINAL COMMUNICATIONS.

The Report of the American Pædiatric Society's Collective Investigation into the Use of Antitoxin in the Treatment of Diphtheria in Private Practice.*

* Reported at the Eighth Annual Meeting held at Montreal, Canada, May 26, 1896.

This subject was chosen by the officers of the Society for its eighth annual meeting, with the belief that a large amount of valuable experience not otherwise available, might in this way be reached and collated. It was also believed that a more trustworthy estimate of the value of the serum treatment of diphtheria might thus be obtained than by statistics taken from hospital practice. There are very few hospitals in America that receive diphtheria patients, and the conditions under which patients are admitted to hospitals and the surroundings while there, are so different from those of private practice, that the measure of success in hospital cases cannot be taken as an index of the results which have been

obtained upon this side of the Atlantic with the new treatment.

In order, therefore, to obtain an expression of opinion from American physicians as to the serum treatment, after what had been, with most of them, their first year's experience, a circular letter was prepared and issued by the Committee early in April. This was distributed through the members of the Society as widely as could be done during the time allowed. An attempt was made to reach as many physicians as possible who had had experience with the remedy.

The first surprise of the Committee was in learning how very widely the serum treatment had been employed, especially in the Eastern and mid-Western states. With more time, the number of cases collected

might easily have been doubled and perhaps trebled: but enough reports have come in to enable one to see what opinion was held on the 1st of May, 1896, by American physicians who have used this remedy.

The circular letter asked for information upon the following points: Age; previous condition; duration of disease when the first injection was made; the number of injections; the extent of the membrane — tonsils, nose, pharynx, and larynx; whether or not the diagnosis was confirmed by culture; complications or sequelæ, viz.: pneumonia, nephritis, sepsis, paralysis; the result; and remarks, including other treatment employed, the preparation of antitoxin used, and general impression drawn from the cases.

Reports were returned from 615 different physicians, with 3,628 cases. Of these, 244 cases have been excluded from our statistical tables. These were cases in which the disease was said to have been confined to the tonsils and the diagnosis not confirmed by culture, and therefore open to question. A few cases were reported in such doubtful terms as to leave the diagnosis uncertain. The figures herewith given are therefore made up from cases in which the diagnosis was confirmed by culture (embracing about two-thirds of the whole number) and others giving pretty clear evidence of diphtheria, either in the fact that they had been contracted from other undoubted cases, or where the membrane had invaded other parts besides the tonsils,

such as the palate, pharynx, nose, or larynx. It is possible that among the latter we have admitted some streptococcus cases, but the number of such is certainly very small.

There are left then of these cases, 3,384 for analysis. These have been observed in the practice of 613 physicians from 114 cities and towns, in fifteen different states, the District of Columbia and the Dominion of Canada.

In the general opinion of the reporters the type of diphtheria during the past year has not differed materially from that seen in previous years, so that it has been average diphtheria which has been treated. If there is any difference in the severity of the cases included in these reports from those of average diphtheria, it is that they embrace a rather larger proportion of very bad cases than are usually brought together in statistics. The cases according to the extent of the membrane, are grouped as follows: In 593 the tonsils alone were involved. In 1397 the tonsils and pharynx, the tonsils and nose, the pharynx and nose, or all three were affected. In 1256 cases the larynx was affected either alone or with the tonsils, pharynx, and nose, one or all. In many instances the statement is made by the reporters that the serum was resorted to only when the condition of the patient had become alarmingly worse under ordinary methods of treatment. This is shown by the unusually large number of cases in which injections were made late in the disease.

Again, many physicians being as yet in some dread of the unfavorable effects of the serum have hesitated to use it in mild cases and have given it only in those which from the onset gave evidence of being of a severe type. The expense of the serum has unquestionably deterred many from employing it in mild cases. These facts, it is believed, will more than outweigh the bias of any antitoxin enthusiasts by including many mild cases which would have recovered under any treatment. It will, however, be remembered that tonsillar cases not confirmed by culture have not been included.

Only two reports embracing a series of over 100 cases have been received, most of the observers having sent in from five to twenty cases, although there are many reports of single cases, particularly of single fatal ones.

In addition to this material which has come in response to the circular, there have been placed at the disposal of the Committee by the courtesy of Dr. H. M. Biggs, 942 cases treated in their homes in the tenements of New York. Of these, 856 were injected by the corps of inspectors of the New York Health Board, upon the request of the attending physician, and eighty-six others were treated by physicians receiving free antitoxin from the Health Board. In the first group the diagnosis of diphtheria was confirmed by culture in every case, and in all of the latter except twenty-six; in these the diagnosis rested upon

extensive membranous deposits or laryngeal invasion. The cases of the New York Health Board were of a more than ordinarily severe type, 485, or more than 50 per cent. of these being reported as being in bad condition at the time of injection: to mild cases the inspectors were not often called. Further, an unusually large number of them (38 per cent.) were injected on or after the fourth day of the disease. In 182 of these cases only the tonsils were affected; in 466 the tonsils with the pharynx or nose, the pharynx and nose, or all three; in 294 the larynx was invaded either with or without disease of the tonsils, nose, or pharynx.

Through the courtesy of Dr. Biggs the committee is able to include also a partial report upon 1,468 cases from Chicago, treated in their homes in that city by a corps of inspectors of the Health Department. It was the custom in Chicago to send an inspector to every tenement-house case reported and to administer the serum unless it was refused by the parents. These cases were therefore treated much earlier and the results were correspondingly better than were obtained in New York, although the serum used was the same in both cities, viz., that of the New York Health Board.

THE RESULT AS INFLUENCED BY THE TIME OF INJECTION.

In Table I, are given the results obtained in these three different groups of cases, classified according to

TABLE I—DAY OF INJECTION AND RESULT.

	Injected on 1st Day.			Injected on 2nd Day.			Injected on 3rd Day.			Injected on 4th Day.			Injected on 5th Day.			Day of Injec- tion Unknown.			Totals.		
	Cases.	Deaths.	Mortality Per cent.	Cases.	Deaths.	Mortality Per cent.	Cases.	Deaths.	Mortality Per cent.	Cases.	Deaths.	Mortality Per cent.	Cases.	Deaths.	Mortality Per cent.	Cases.	Deaths.	Mortality Per cent.	Cases.	Deaths.	Mortality Per cent.
The Committee's Report.	764	38	4.9	1065	89	8.3	620	79	12.7	336	77	22.9	390	152	38.9	215	15	7.0	3384	450	13.0
New York Health Board.	126	11	8.7	215	26	12.0	228	37	16.6	153	32	20.9	203	59	29.0	17	4	23.5	942	169	17.8
Chicago Health Board.	106	0	0	336	5	1.5	660	18	2.7	269	38	14.1	97	33	34.0	0	0	0	1468	94	6.4
Totals.	996	49	4.9	1616	120	7.4	1508	134	8.8	758	147	20.7	690	244	35.3	232	19	8.2	5794	713	12.3

the day on which they received the first injection of serum antitoxin.

The grand total gives 5,794 cases with 713 deaths, or a mortality of 12.3 per cent., including every case returned; but the report shows that 218 cases were moribund at the time of injection or died within twenty-four hours of the first injection. Should these be excluded there would remain 5,576 cases (in which the serum may be said to have had a chance) with a mortality of 8.8 per cent.

Of the 4,120 cases injected during the first three days there were 303 deaths—a mortality of 7.3 per cent., including every case returned. If from these we deduct the cases which were moribund at the time of injection, or which died within twenty-four hours, we have 4,013 cases, with a mortality of 4.8 per cent. Behring's original claim, that if cases were injected on the first or second

day the mortality would not be 5 per cent., is more than substantiated by these figures. The good results obtained in third-day injections were a great surprise to your Committee. But after three days have passed the mortality rises rapidly, and does not differ materially from ordinary diphtheria statistics. Our figures emphasize the statement so often made, that relatively little benefit is seen from antitoxin after three days, however, it must be said that striking improvement has in some cases been seen even when the serum has been injected as late as the fifth or sixth day. The duration of the disease, therefore, is no contraindication to its use.

THE INFLUENCE OF BACTERIOLOGICAL DIAGNOSIS UPON THE STATISTICS.

This is shown in Table II.

TABLE II.—DIAGNOSIS CONFIRMED BY BACTERIOLOGICAL EXAMINATION.

Committee's Reports,	2,453 cases;	302 deaths;	mortality,	12.3 per cent.
N. Y. Board of Health,	916 "	160 "	"	16.9 " "
Chicago " "	1,468 "	94 "	"	6.4 " "
Totals, - -	4,837 "	556 "	"	11.4 " "
(Excluding 145 cases which were moribund or which died in twenty-four hours), - - - - -				
	-	-	"	8.7 " "

DIAGNOSIS FROM CLINICAL EVIDENCE ONLY.

Committee's Reports,	931 cases;	148 deaths;	mortality,	15.7 per cent.
N. Y. Board of Health,	26 "	9 "	"	34.6 " "
Totals - -	957 "	157 "	"	16.3 " "
(Excluding 72 cases either moribund or dying in twenty-four hours), - - - - -				
	-	-	"	9.6 " "

In the cases in which the diagnosis was not confirmed by a bacteriological examination the mortality is thus 5 per cent. higher than in the bac-

teriological cases. This difference is to be explained by two facts: first, as already stated, that we have excluded from our reports all tonsillar

cases (and hence most of the very mild ones) not confirmed by bacteriological examinations: and secondly, by the fact that this group of cases comprises those treated in the country where physicians have hesitated to use antitoxin unless the type of the disease was a grave one, and where also a large proportion of the injections were made later than in the cities. However, should we leave out the moribund cases, the mortality is but 9.6 per cent., which differs but slightly from the cases confirmed by bacteriological diagnosis.

In our subsequent statistics we shall consider together all the cases bacteriologically confirmed and otherwise, as the statistics are not materially altered by this grouping.

THE RESULTS AS MODIFIED BY THE AGE OF THE PATIENTS.

Unfortunately the ages have not been furnished in the report of the Chicago cases, and we have therefore only the cases reported to the Committee and those from the New York Board of Health for analysis. In Table III, are shown the mortality of the different ages grouped separately.

The highest mortality is seen as in all reports to be in the cases under two years, but including all those returned even those that were moribund when injected, the death rate was but 23.3 per cent., (21.7 per cent. of the Committee's cases) while if we exclude cases moribund when injected or dying within the first twenty-four hours, it falls to 19.2 per cent.

After the second year there is noticed a steady decline in mortality up to adult life. In many of the reports previously published, the statement has been made that no striking improvement in results was observed in adult cases treated by the serum. Our figures strongly contradict this opinion. Of 359 cases over fifteen years old, which were returned, there were but thirteen deaths. That the reader may judge for himself how far antitoxin is to be held responsible for the result, a brief summary of these thirteen cases is appended.

CASE I.—Fifteen years old; injected on the fourth day: membrane covering tonsils and pharynx: profoundly septic, sinking rapidly when injected: died in two hours. "My only death in seventeen cases" (Jones, Gloucester, Mass.)

CASE II.—Forty-four years old; injected on the fourth day: membrane on the tonsils and pharynx: in bad condition; died in three hours after injection. The tonsils had been previously incised, the early diagnosis having been quinsy.

CASE III.—Thirty-one years old: injected on the sixth day: membrane on the tonsils, nose, pharynx, and larynx; intubation; sepsis: in bad condition; lived eight hours after injection.

CASE IV.—Thirty-five years old; injected on the fifth day: membrane on the pharynx and nose (?): in bad condition; septic: died in twelve hours.

CASE V.—Sixty years old: in bad

TABLE III.—AGE AND RESULT OF TREATMENT.

	0 to 2 Years.			2 to 5 Years.			5 to 10 Years.			10 to 15 Years.			15 to 20 Years.			20 Years and Over.			
	Cases.	Deaths.	Mortality Per cent.	Cases.	Deaths.	Mortality Per cent.	Cases.	Deaths.	Mortality Per cent.	Cases.	Deaths.	Mortality Per cent.	Cases.	Deaths.	Mortality Per cent.	Cases.	Deaths.	Mortality Per cent.	
Committee's Report	-	631	137	21.7	1276	175	13.7	883	108	12.2	276	19	6.8	112	4	3.6	214	9	4.2
New York Health Board	-	236	65	27.5	466	83	17.8	178	21	11.2	29	0	0	11	0	0	22	0	0
Totals	-	867	202	23.3	1742	258	14.7	1061	129	12.1	305	19	6.2	123	4	3.2	236	9	3.8
Moribund	-	43		59			59			9			0			4			
Mortality Excluding Moribund Cases	-		19.2			13.3			8.7			3.3			3.2			2.1	

condition: had serious mitral regurgitation: injected on the fourth day: membrane covering tonsils, pharynx, and larynx: died from heart failure on following day.

CASE VI.—Sixty years old: "kidney trouble for years," injected on the third day: very extensive membrane, covering tonsils, pharynx and nose; profound sepsis: in bad condition: died suddenly on the day after injection.

CASE VII.—Seventeen years old: in bad condition: convalescing from measles; enormous adenopathy: profound sepsis: exceedingly high temperature; membrane covering tonsils and nose: injected at the end of forty-eight hours: three injections, temporary improvement after each one: duration of life not given.

CASE VIII.—Fifteen years old: in bad condition: injected on the ninth day: membrane covering tonsils, nose, pharynx and larynx: no operation: enormous infiltration of the tissues of the neck: nephritis: sepsis: lived four days and died of sepsis.

CASE IX.—Twenty years old: injected on the third day: membrane upon the tonsils, nose, pharynx and larynx: "a stubborn patient who got up before he was allowed, and died suddenly after it."

CASE X.—Twenty-five years old: injected on the fifth day: membrane covering both tonsils, entire pharynx, and completely occluding nose; nephritis and sepsis: throat cleared off entirely: died suddenly on the fourteenth day from cardiac paralysis.

CASE XI.—Nineteen years old: injected on the fifth day: membrane upon the tonsils and pharynx: profound sepsis: duration of life unknown.

CASE XII.—Twenty-two years old: injected on the fourth day: membrane on the tonsils and gums: sepsis: died on the sixth day.

CASE XIII.—The well-known Brooklyn case, reported in 1895. Girl, sixteen years old, who died suddenly ten minutes after injection.

Such are the adult cases which antitoxin failed to cure. Four of them were moribund at the time of injection, no one of them living over twelve hours. Two, both sixty years old, were already crippled by previous organic disease, one of the heart, and the other of the kidneys. In the measles case there was undoubted evidence of streptococcus septicæmia. Only two of the cases were injected as early as the third day: three of them on the fifth day: and one on the ninth day. Omitting the four moribund cases the mortality of 355 adult cases treated with the serum is 2.5 per cent.

PARALYSIS.

Reliable data upon this point and those hereafter to be mentioned are to be had only from the 3,384 reports returned to the Committee. Of these paralytic sequelæ appeared in 328 cases, 9.7 per cent. Of the 2,934 cases which recovered, paralysis was present in 276, or 9.4 per cent. Of the 450 cases which died, paralysis was noted in fifty-two, or 11.4 per cent.

The variety of the paralysis and the date of injection is shown in the following table :

TABLE IV.—VARIETY OF PARALYSIS AND THE DAY OF INJECTION.

RECOVERY CASES.	CASES	DAY OF INJECTION.					
		1st Day	2d Day	3d Day	4th Day	5th Day	Unknown
Paralysis mentioned (variety not specified) - - - -	132	8	32	32	19	16	23
Throat only (aphonia, nasal voice or regurgitation) - - -	114	16	21	25	11	16	24
Extremities - - - -	14	3	5	2	—	3	1
Ocular - - - -	11	—	4	3	1	2	1
General (multiple neuritis) - -	4	—	1	2	1	—	—
Sterno-mastoid - - - -	1	—	1	—	—	—	—
FATAL CASES.							
Paralysis mentioned (variety not specified) - - - -	9	—	3	2	1	2	1
*Cardiac, late after throat clear (in 4 of them throat also) - -	32	1	2	8	9	8	4
Throat only - - - -	6	—	2	—	—	—	4
General late - - - -	4	—	1	—	1	2	—
Muscles of Respiration - - -	1	—	1	—	—	—	—
Totals - - - -	328	28	73	76	43	49	59

* Cases of heart failure occurring at the height of the disease have not been included here; although they are mentioned among the cases of cardiac paralysis in the table of fatal cases.

Observations of some of the individual cases are interesting, particularly those of cardiac paralysis. It is twice stated that the child had gotten up and walked out of the house, where it was found dead. Twice death occurred after sitting up suddenly: once on jumping from one bed into another. One patient of twenty years got up contrary to orders and died soon afterward. Another patient was apparently well until he indulged in a large quantity of cake and candy, soon after which

cardiac symptoms developed, and he died shortly. One case was that of a woman sixty years old, who had serious organic cardiac disease.

It is difficult from these statistics to state what protective power the serum may have over the nerve cells and fibres. Apparently this is not great unless the injections are made early in the disease, and even then in severe cases the amount of damage done to these tissues in twenty-four hours may be very great, even irreparable. Time is not the only

element in estimating the effect of the diphtheria toxins.

Great discrepancy exists in the statements made regarding the frequency of paralytic sequelæ after diphtheria. In a series of 1,000 cases reported by Lennox Browne, paralytic sequelæ were present in 14 per cent. In 2,448 cases by Sanné, paralysis was noted in 11 per cent. In the series of cases here reported, the difference is slightly in favor of the antitoxin treatment, but paralysis is certainly frequent enough to show how extremely susceptible the nervous elements are to the diphtheria toxins. One thing is quite striking from a study of these cases, and that is the proportion that have died from late cardiac paralysis. That very many of them would undoubtedly have succumbed earlier in the disease from suffocation (laryngeal cases) or diphtheritic toxæmia, had the serum not been employed, is beyond question. Although the serum is able to rescue even many such desperate cases, it cannot overcome the effects of the toxins upon the cells, which have occurred before it was injected.

SEPSIS.

Sepsis is stated to have been present in 362 of the 3,384 cases or 10.7 per cent. It was present in 145 or 33 per cent. of the fatal cases. Some explanation is necessary for a correct appreciation of these figures. The majority of the reporters, it is plain from their remarks, have not distinguished between diphtheritic

toxæmia and streptococcus sepsis. The former is certainly meant in the great majority of the cases. There is a very small proportion in which there is evidence of streptococcus sepsis. The six cases complicating measles, and the five complicating scarlet fever, however, should possibly be included among this list.

NEPHRITIS.

The statements on this point are quite unsatisfactory. The reports state that nephritis was present 350 times, or in 10 per cent. of the cases. On the one hand it must be stated that the diagnosis of nephritis rests in many cases simply upon the presence of albumen in the urine: but, on the other hand, it is true that in a large number of the cases, more than half, no examination of the urine is recorded as having been made, so that it is impossible to state with anything like approximate accuracy, the frequency of nephritis in these cases. Of the 450 fatal cases, the presence of nephritis is mentioned without qualification or explanation in thirty-nine cases; these being usually put down also as septic, dying in the acute stage of the disease. There are fifteen fatal cases, however, in which the renal disease was stated as the cause of death. In no less than nine the nephritis occurred late in the disease, usually during the second or third week. In these fifteen cases the evidence of severe nephritis was conclusive, such symptoms being present as dropsy, sup-

pression of urine, with coma or convulsions.

BRONCHO-PNEUMONIA.

Broncho-pneumonia is stated to have been present in 193 of the 3,384 cases, or 5.9 per cent, a remarkably small proportion when compared with hospital statistics. Among the patients that recovered, broncho-pneumonia was noted 114 times or in 3.8 per cent; among the fatal cases seventy-nine times, or in 17.5 per cent., but in only about one-half of these was the pneumonia the cause of death. Of these thirty-seven were laryngeal cases operated upon late, ten were septic cases, and the pulmonary disease was coincident with the height of the diphtheritic process. In seven pneumonia was independent of both the above conditions, occurring late in the disease in all but two.

LARYNGEAL CASES.

Of the 3,384 cases reported to the Committee, the larynx is stated to have been involved in 1,256 cases or 37.5 per cent. This proportion is somewhat higher than is usual, and is partly explained by the fact that several physicians have sent in the reports only of their laryngeal cases. These laryngeal cases occurred in the practice of 379 physicians.

In 691, or a little more than one-half the number, no operation was done, and in this group there were 128 deaths. In forty-eight of them laryngeal obstruction was responsi-

ble for the fatal issue, operation being refused by the parents, or no reason for its being neglected having been given. In the eighty remaining fatal cases the patients died of other complications, and not from the laryngeal disease.

In the 563 cases, therefore, or 16.9 per cent. of the whole number, there was clinical evidence that the larynx was involved, and yet recovery took place without operation. In many of these cases the symptoms of stenosis were severe, and yet disappeared after injection without intubation. No one feature of the cases of diphtheria treated by antitoxin has excited more surprise among the physicians who have reported them, than the prompt arrest, by the timely administration of the serum, of membrane which was rapidly spreading downwards below the larynx. Such expressions abound in the report as "wonderful," "marvelous," "prepared to do intubation, but at my next visit the patient was so much better it was unnecessary," "in all my experience with diphtheria have never seen anything like it before," "no unprejudiced mind could see such effects and not be convinced of the value of the serum," etc., etc.

In establishing the value of the serum, nothing has been so convincing as the ability of antitoxin, properly administered, to check the rapid spreading of membrane downward in the respiratory tract, as is attested by the observations of more than 350 physicians who have sent in reports.

Turning now to the operative cases we find the same remarkable effects of the antitoxin noticeable. Operations were done in 565 cases, or in 16.7 per cent. of the entire number reported. Intubation was performed 533 times with 138 deaths, or a mortality of 25.9 per cent. In the above are included nine cases in which a secondary tracheotomy was done, with seven deaths. In thirty-two tracheotomy only was done with twelve deaths, a mortality of 37.4 per cent. Of the 565 operative cases, sixty-six were either moribund at the time of operation, or died within twenty-four hours after injection. Should these be deducted, there remain 499 cases operated upon by intubation or tracheotomy, with 84 deaths, a mortality of 16.9 per cent.

Of the 2,819 cases not operated upon, there were 312 deaths, a mortality of 11.3 per cent. Deducting the moribund cases, or those dying within twenty-four hours after injection, the total mortality of all non-operative cases was 9.12 per cent.

Let us compare the results of intubation in cases in which the serum was used, with those obtained with this operation before the serum was introduced. Of 5,546 intubation cases in the practice of 242 physicians, collected by McNaughton and Maddren (1892) the mortality was 69.5 per cent. Since that time statistics have improved materially by the general use (in and about New York, at least) of calomel fumigations. With this addition, the best

results published (those of Brown) showed in 279 cases a mortality of 51.6 per cent.

Let us put beside the cases of McNaughton and Maddren the 533 intubations with antitoxin, with 25.9 per cent. mortality. With Brown's personal cases let us compare those of the fourteen observers who have reported to the Committee ten or more intubation operations in cases injected with serum. These comprises 280 cases with sixty-five deaths, a mortality of 23.2 per cent. In both comparisons the mortality without the serum is more than twice as great as in the cases in which serum was used.

The reports of some individual observers concerning intubation with the serum are interesting.

Neff, New York: twenty-seven operations, with twenty-seven recoveries.

Rosenthal, Philadelphia: eighteen operations, with sixteen recoveries.

Booker, Baltimore: seventeen operations, with seventeen recoveries, including one aged ten months, and one seven and a half months.

Seward, New York: eight operations, with eight recoveries.

McNaughton, Brooklyn: "In my last seventy-two operations without serum, mortality 66.6 per cent.: in my first seventy-two operations with serum, mortality 33.3 per cent."

O'Dwyer, New York: "In my last one hundred intubations, first seventy, without serum, mortality 73 per cent.: last thirty, with serum, mortality 33.3 per cent.

But even these figures do not adequately express the benefit of antitoxin in laryngeal cases. Witness the fact that over one-half the laryngeal cases did not require operation at all. Formerly 10 per cent. of recoveries was the record for laryngeal cases not operated upon. Surely, if it does nothing else the serum saves at least double the number of cases of laryngeal diphtheria that has been saved by any other method of treatment.

The great preponderance of intubation over tracheotomy operations shows how much more highly the profession in this country esteems the former operation.

A STUDY OF THE FATAL CASES.

Of the 450 fatal cases in the Committee's Report, 229, or one-half, received their first injection of the serum on or after the fourth day of the disease, and 152, or over one-third of these, on or after the fifth day.

There were fifty-eight cases in which it was stated that the child was moribund at the time of injection, the serum being administered without the slightest expectation of benefit, but at the earnest solicitation of the parents.

There remain 350 cases in which the cause of death could be pretty accurately determined by the reports. These died from the following causes, the most important cause being placed first:

Sepsis (including diphtheritic toxæmia) was the cause of death in 105

cases: of which sixteen had nephritis, four were intubated or tracheotomized, two were laryngeal cases not operated upon, four had paralysis, one had pneumonia, and in one the fatal sepsis was attributed to a traumatic condition of the left knee.

Cardiac paralysis was the cause of death in fifty-three cases. Under this head are included cases of sudden heart failure occurring at the height of the disease (twenty-one in number) as well as those more commonly designated as heart paralysis, where death occurred suddenly after the throat cleared off. Of the latter there were thirty-two examples: four of these cases had throat paralysis, nineteen were septic, eight had nephritis, five were intubated, and one tracheotomized.

Broncho-pneumonia was put down as the cause of death in fifty-four cases. In thirty-seven of these it followed laryngeal diphtheria; of these twenty-two were intubated, and four tracheotomized; two had nephritis; nine were septic. Broncho-pneumonia and sepsis was the cause of death in ten cases, of which three had nephritis and one general paralysis. Broncho-pneumonia caused death in seven cases, apart from sepsis or laryngeal diphtheria; of these only one had nephritis: one died from heart failure; and in five pneumonia came on late in the disease.

Laryngeal diphtheria without operation caused death in forty-eight cases. In some of these the operation was refused by the parents, in others it was neglected by the physi-

cian, the patients dying of asphyxia: three of these cases had nephritis, four were septic, two had pneumonia, and one had sepsis and nephritis.

Diphtheritic tracheitis or bronchitis caused death in eleven cases: all of these were intubated, and in two there was evidence of the existence of membrane in the bronchi before operation. There were thirty-three other cases in which death followed laryngeal diphtheria without the super-vention of pneumonia. It is highly probable that in some of these death was due to membranous tracheitis or bronchitis. All of them were operated upon: ten were septic two had paralysis, and one had nephritis.

Sudden obstruction of the intubation tube was the cause of death in three other laryngeal cases.

The tube was coughed up in three cases, fatal asphyxia occurring before the physician could be summoned.

Died on the table during tracheotomy, one case.

Nephritis was the cause of death in fifteen cases: seven of these were septic, and three had been intubated.

General paralysis was the cause of death in five cases: in all probably the pneumogastric was involved.

Paralysis of the respiratory muscles produced death in one case, one of laryngeal diphtheria, which was intubated, and was complicated by broncopneumonia.

Measles associated with diphtheria produced death in six cases: five of these were laryngeal and were intubated: in two there was pneumonia, and in two sepsis. Diphtheria devel-

oped during the height of the measles, or immediately followed it.

Scarlet fever with diphtheria was the cause of death in six cases: in three of these there was bronchopneumonia, nephritis and sepsis: in two scarlet fever preceded diphtheria, and in one of these there was sepsis with gangrene of the tonsils. In the sixth case the patient died of scarlet fever, which developed during convalescence from the diphtheria.

Gangrene of the cervical glands or cellular tissue of the neck was the cause of death in two cases associated with profound general sepsis.

Endocarditis caused death in one case, nineteen days after the diphtheria.

Diphtheritic inflammation of the tracheal wound with sepsis caused death in one case.

General tuberculosis, five weeks after diphtheria, was assigned as the cause of death in one case.

Exhaustion was the cause of death in three cases, one a protracted case; another complicated by pneumonia and sepsis: one by nephritis.

Convulsions was the cause of death in three cases apart from disease of the kidneys. In one, the well-known Brooklyn case, the girl died ten minutes after the injection, in another twenty-four hours after injection, in the third the particulars were not given.

Meningitis was assigned as the cause of death in one case.

THE KIND OF ANTITOXIN USED.

They are given in the order of fre-

quency with which they have been used. First, the serum prepared by the New York Board of Health; second, Behring's; third, Gibber's;* fourth, Mulford's; fifth, Aronson's; sixth, Roux's. In addition a large number of cases are reported as having been treated by the serum prepared by the Health Boards of different cities—Brooklyn, Newark, Rochester, Pittsburgh, etc. The largest number of cases have been treated by the serum prepared by the New York Health Board, a very large number by Behring's serum, all others being relatively in small numbers.

Dosage and number of injections. In the great majority of cases but one injection is reported. In very severe ones two and three have been given. The largest amount is in a case by Weimer (Chicago) who gave eighteen injections of Behring's serum to a laryngeal case in a child thirteen years old. Another instance of ten injections is reported with no unfavorable symptoms.

As a rule the dosage has been smaller in antitoxin units than is now considered advisable, particularly in many of the laryngeal cases and others injected later than the second day.

* It is worthy of note that in the tests made by the State Board of Health of Massachusetts, published under date of April 6, 1896, this serum was found far below the standard as labelled upon the bottle; thus a package marked to contain 2,500 units, by test was found to contain less than 700. All the other varieties of serum tested were found essentially up to the standard.

* CASES INJECTED REASONABLY EARLY
(DURING THE FIRST THREE DAYS)
IN WHICH ANTITOXIN IS SAID

TO HAVE PRODUCED NO EFFECT. THE DISEASE ENDING FATALLY.

These cases are twenty in number. Brief reports are introduced that the reader may judge to what degree they may be regarded as a test of the serum treatment. In our statistical tables all of them have been included among the fatal cases.

In Cases I and II, the cultures were reported negative. Case I., by Gallagher, New York: Child, eighteen months old: septic; although no eruption was present, the reporter was inclined on reflection to regard this case as one of scarlatinal sore throat."

CASE II., by Potter, Buffalo: Male, fourteen months old: two cultures made, but no Löffler bacilli found: membrane in the nose and pharynx. Injected on the third day, one dose of Behring's serum No. 1. No improvement: death from sepsis "Probably pseudo-diphtheria" (I. H. P.)

In CASES III. to IX., no cultures were made.

CASE III., by Tefft, New Rochelle: Seven years old: injected after eighteen hours' illness: two injections of Behring's No. 2 serum: membrane on the tonsils, pharynx, and nose: no effect observed from injections: patient dying on the third day.

CASE IV., by Tefft: Male, four years old: membrane on the tonsils and pharynx: injected after thirty-six hours' illness with Behring's No. 2: died on the third day: no notice-

able effect from the injection.

CASE V., by Tefft: Six years old; membrane on the tonsils, nose and pharynx; septic; injected after thirty-six hours' illness: three injections of Behring's No. 2. "Saw no effect from the injections, the disease going steadily on to a fatal termination."

CASE VI., by Cameron, Montreal: Two and a half years old; fifty hours ill; membrane on the tonsils, nose and pharynx; septic; no improvement noticed, and child died twenty hours after injection.

CASE VII., by Baker, Newtonville, Mass.: Three years old; laryngeal diphtheria; injected on the third day 10 c. c. Roux's serum: cyanosis: intubation: temperature 103° F., and continued high until death in eighteen hours after operation: injections had no effect.

CASE VIII., by Anderson, New York: Three years old; injected after three hours' illness: membrane on the tonsils, nose and pharynx: one injection New York Health Board antitoxin. "A case of malignant diphtheria, full duration twenty-four hours."

CASE IX., by McLain, Washington: Four years old; twelve hours sick: membrane on the pharynx and larynx; two injections; no operation; first injection early in the morning, the other early in the afternoon: died the same day; no change in the condition; antitoxin had no apparent effect.

In CASES X. to XIII. diphtheria complicated measles, all reported by

W. T. Alexander, New York. Disease confined to the larynx in all; in three the stenosis developed during measles, and in one while the patient was convalescing from measles: diagnosis confirmed by culture in every case, and in all intubation performed. Antitoxin seemed to have no effect, the cases going on to a fatal termination; all received their injections within twenty-four hours after the laryngeal symptoms appeared.

In three cases—XIV. to XVI.—the type of the disease was malignant from the outset.

CASE XIV., by Lloyd, Philadelphia: Fifteen months old; injected after thirty-six hours' illness; diagnosis confirmed by culture; membrane covered the tonsils, pharynx, nose, and larynx; intubation: sepsis; death on the fifth day. Although antitoxin was used as promptly as possible no perceptible effect noticed. One injection, Behring's No. 3, was given.

CASE XV., by Wert, Mount Vernon, N. Y.: Eighteen months old; injected on the third day; diagnosis confirmed by culture; membrane on the tonsils and pharynx. "Very intense type of the disease." Antitoxin could not be procured before the third day; Gibier's serum used. "Died suddenly in apparent convulsions about ten hours after injection; urine not examined; very little passed."

CASE XVI., by Ingraham: Six years old; membrane covered the tonsils, pharynx, and larynx; diagnosis confirmed by culture; pneumonia present; condition very bad: injected

after two and a half days' illness; three injections of Behring's serum; no benefit noticed.

CASE XVII., by Johnson, Buffalo: Three years old; twelve hours ill; case septic from the start: membrane on the tonsils, pharynx, and larynx; diagnosis confirmed by culture. "Antitoxin apparently had very little effect."

CASE XVIII., by Baker, Newtonville, Mass.: Two and a half years old; twenty hours ill; disease confined to larynx; diagnosis confirmed by culture; one injection of Gibier's serum; intubation. "Was doing well a few minutes before death when child got up in its crib, changed color and died almost immediately." Death attributed to "sudden heart failure; found no obstruction of the tube."

CASE XIX., by Story, Washington: five years old: in fair condition; thirty-six hours ill; diagnosis confirmed by culture; membrane on the tonsils, pharynx, and larynx; one injection of United States Marine Hospital antitoxin; injection produced no effect.

CASES IN WHICH UNFAVORABLE SYMPTOMS WERE, MIGHT HAVE BEEN, OR WERE BELIEVED TO HAVE BEEN, DUE TO ANTITOXIN INJECTIONS.

Only three cases reported to the Committee could by any possibility be placed in this category. All of the details furnished by the reporters are reproduced:

CASE I., by Kortright, Brooklyn: Sudden death in convulsions ten minutes after injection. This case is the already well-known Valentine case, occurring in Brooklyn in the spring of 1895. The principal points were as follows: A girl sixteen years old; in good condition: tonsillar diphtheria: diagnosis confirmed by culture; injected on the first day with 10 c. c. Behring's serum; died in convulsions ten minutes later.

CASE II., by Kerley, New York: Fairly healthy boy, two and one half years old; membrane on tonsils, pharynx, and in nose. Diagnosis confirmed by culture; injected on the morning of the fourth day with 10 c. c. (1000 units) New York Health Board serum: temperature at time of injection 100.4° F: no sepsis, and child apparently not very sick; urine free from albumen. Distinctly worse after injection: in ten hours temperature rose to 103° F.; urine albuminous; throat cleared off rapidly, but marked prostration and great anemia, with irregular fluctuating temperature continued and death from exhaustion with heart failure four days after the use of the serum.

CASE III., by Eynon, New York: Male, three and one half years old; diagnosis confirmed by culture: two days ill: membrane on tonsils and in nose: two injections New York Health Board serum. "A rapid nephritis developed after the second injection causing coma, convulsions and death twenty hours after the second injection." In response to an

inquiry for further particulars the following was received: "The case seemed a mild one, but the injection was given one afternoon and repeated the following afternoon, about 1500 units in all. The urine up to that time had not been examined. About fourteen or sixteen hours after the second injection unfavorable symptoms began to develop pointing to infection of the kidneys. The urine was found to be loaded with albumen. My impression at the time was that the antitoxin either produced, hastened or intensified nephritis, thereby causing the fatal termination."

In regard to the three fatal cases just cited, Case I., is wholly unexplained. In Case II., the query arises, did this sudden change hinge upon the injection of the serum, or was it one of those unexplained abrupt changes for the worse in a case apparently progressing favorably, so often observed in diphtheria? As regards Case III., it will be seen from the letter that the evidence is not at all conclusive. All details available are given, and the reader may draw his own conclusions.

CLINICAL COMMENTS.

The following are selected from hundreds which have been received, and may be taken fairly to represent the sentiments of the physicians who have sent in reports:

Dr. Douglass H. Stewart, New York, sends reports of 4 cases, all

desperate ones, and all "presumably fatal under any other form of treatment." Very extensive membrane in all; larynx involved in 3; in one neglected case in a child three years old, *injected upon the fifth day*, the membrane covered the tonsils, nose, pharynx, and larynx. Broncho-pneumonia, nephritis and sepsis all present. Temperature 107° F. at the time of the first injection. Prostration so great that he dared not attempt intubation. Believes that this case would certainly have been fatal in a few hours without antitoxin. Perfect recovery.

In another case three years old, membrane first discovered in the left ear, next morning seen upon the tonsils, and spread in a few hours over the pharynx into the larynx and trachea. Intubation necessary in a few hours: had never seen membrane spread so rapidly as in this child. Urine albuminous: membrane subsequently expelled from larynx and trachea in large casts, with profuse bloody expectoration. Complete recovery on the ninth day. The physician describes this as "the very worst case of diphtheria that has ever come under my notice." Five thousand four hundred antitoxin units were given in four injections. He remarks: "My experiences in the past have been so unfortunate that the advocates of antiseptics or therapeutics were a constant surprise to me. It has been my fate to have the most desperate cases unloaded upon my shoulders. I had been forced

into the belief that the profession was absolutely powerless in the presence of true diphtheria: have lost case after case with tube in the larynx and calomel fumigations at work. Previous to antitoxin my only hope had become centered in nature and stimulants. In two years have not lost a single case, and surely I may be pardoned if I suffer from diphtheria-phobia in a sub-acute form, and use antitoxin sometimes unnecessarily."

Dr. L. L. Danforth, New York, states that during his twenty-two years of practice in New York he has seen many fatal cases of diphtheria, had used all kinds of remedies, mainly those of the homeopathic school, and while he had as much confidence in the latter as in anything else, he had seen so many deaths during the year past that he "hailed with delight the advent of antitoxin, and determined to use it. Reports five cases, all of a severe type. "The result in every case has been marvelous. I would not dare to treat a case now without antitoxin."

Dr. H. W. Berg, New York, reporting fourteen cases says: "I have not yet ceased to be surprised at the recovery of some of these cases, which, in the light of my former experience with diphtheria treated without antitoxin, seemed to be irretrievably lost."

Dr. George McNaughton, Brooklyn, reports seventy-two laryngeal cases, with twenty-four deaths; sixty-seven of these were intubated, with

twenty-one deaths. He states that he has kept no records of cases other than laryngeal ones, as these seemed the best test of the serum treatment. He believes that if the serum is used early, very many cases will not need operation for the relief of stenosis. "I would urge the use of antitoxin in all cases of croup in any patient who has an exudation upon the pharynx; would not wait for bacteriological confirmation of diagnosis, for in so doing valuable time is lost." Has noticed that the tube is coughed up more frequently in injected cases, and believed this due to the fact that the swelling of the tissues subsides at an earlier date.

Dr. D. C. Moriarta, Saratoga, reporting four cases, says that the first was a malignant one and "I only used the remedy because I am Health Officer and was urged to do so, as the type of the disease was that from which I have seen recovery but once in eleven years." Boy five years old, four days ill when injected: great prostration, rapid breathing, and he was "practically gone." Nares filled and tonsils and pharynx covered; severe nasal hæmorrhage: cervical glands greatly swollen: heart's action very frequent and feeble; child unable to lie down. Behring's serum twenty c. c. injected; in six hours evidently more comfortable; in eighteen hours decidedly improved; in twenty-four hours sitting up and feeling much better; in forty-eight hours all urgent symptoms gone and membrane loosening. Subsequently had

nephritis which lasted six weeks, and multiple neuritis which persisted for three months, but ultimately recovered perfectly. "I send this report because it converted me. No unbiased person familiar with diphtheria could see such results as this and not feel there must be good in it.

Dr. F. M. Crandall, New York, sends report of a child seven years old. Membrane on the tonsils and in larynx, with croup for forty hours when antitoxin was injected and intubation done. Progress of the disease had been rapid: semi-stupor and eyes half open; very feeble rapid pulse; intense toxæmia; general cyanosis. Both cyanosis and dyspnoea persisted after intubation, showing clearly the presence of membrane below the tube. Case regarded as "absolutely hopeless." The first change was seen in the disappearance of toxæmia, with improvement in the pulse, clearness of the mind, etc.; later a change in the local condition: large masses of membrane were expelled from the larynx and trachea, necessitating frequent removals of the tube. Tube finally removed in a week with complete recovery.

Dr. Reynolds, Baltimore, mentions a case showing the danger of relying too implicitly upon the bacteriological diagnosis. Male, three years. Culture reported only staphylococcus and streptococcus, consequently injection delayed until the fifth day, when membrane covered tonsils, nose, and pharynx. Child died two days later. A sister subsequently contracted the

disease, received antitoxin on the third day and recovered. The reporter would not wholly rely upon the culture test for diagnosis.

SUMMARY.

(1) The report includes returns from 615 physicians. Of this number more than 600 have pronounced themselves as strongly in favor of the serum treatment, the great majority being enthusiastic in its advocacy.

(2) The cases included have been drawn from localities widely separated from each other, so that any peculiarity of local conditions to which might be ascribed the favorable reports must be excluded.

(3) The report includes the record of every case returned except those in which the evidence of diphtheria was clearly questionable. It will be noted that doubtful cases which recovered have been excluded, while doubtful cases which were fatal have been included.

(4) No new cases of sudden death immediately after injection have been returned.

(5) The number of cases injected reasonably early in which the serum appeared not to influence the progress of the disease was but nineteen, these being made up of nine cases of somewhat doubtful diagnosis; four cases of diphtheria complicating measles, and three malignant cases in which the progress was so rapid that the cases had passed beyond any reasonable prospect of recovery before the

serum was used. In two of these the serum was of uncertain strength and of doubtful value.

(6) The number of cases in which the patients appeared to have been made worse by serum were three, and among these there is only one new case in which the result may fairly be attributed to the injection.

(7) The general mortality in the 5,794 cases reported was 12.3 per cent.; excluding the cases moribund at the time of injection or dying within twenty-four hours, it was 8.8 per cent.

(8) The most striking improvement was seen in the cases injected during the first three days. Of 4,120 such cases the mortality was 7.3 per cent.; excluding cases moribund at the time of injection or dying within twenty-four hours, it was 4.8 per cent.

(9) The mortality of 1,448 cases injected on or after the fourth day was 27 per cent.

(10) The most convincing argument, and to the minds of the Committee an absolutely unanswerable one, in favor of serum therapy is found in the results obtained in the 1,256 laryngeal cases (membranous croup). In one-half of these recovery took place without operation, in a large proportion of which the symptoms of stenosis were severe. Of the 533 cases in which intubation was performed the mortality was 25.9 per cent. or less than half as great as has ever been reported by any other method of treatment.

(11) The proportion of cases of broncho-pneumonia—5.9 per cent.—is very small and in striking contrast to results published from hospital sources.

(12) As against the two or three instances in which the serum is believed to have acted unfavorably upon the heart might be cited a large number in which there was a distinct improvement in the heart's action after the serum was injected.

(13) There is very little, if any, evidence to show that nephritis was caused in any case by the injection of serum. The number of cases of genuine nephritis is remarkably small, the deaths from that source numbering but fifteen.

(14) The effect of the serum on the nervous system is less marked than upon any other part of the body: paralytic sequelæ being recorded in 9.7 per cent. of the cases, the reports going to show that the protection afforded by the serum is not great unless injections are made very early.

The Committee feels that this has been such a responsible task that it has thought best to state the principle which has guided it in making up the returns. While it has endeavored to present the favorable results with judicial fairness, it has also tried to give equal or even greater prominence to cases unfavorable to anti-toxin.

In conclusion the Committee desires in behalf of the Society to express its thanks to members of the profession who have coöperated so

actively in this investigation, and to Dr. A. R. Guerard for the preparation of the statistical tables.

(Signed)

L. EMMETT HOLT, M.D.,
W. P. NORTHRUP, M.D.,
JOSEPH O'DWYER, M.D.,
SAMUEL S. ADAMS, M.D.,

Committee.

THE ACTION OF THE SOCIETY UPON THE REPORT.

At the close of its presentation, the Society voted to accept the report of the Committee and after a full discussion it was decided to embody its conclusions in the following resolutions:

(1) *Dosage.* For a child over two years old, the dosage of antitoxin should be in all laryngeal cases with stenosis, and in all other severe cases, 1500 to 2000 units for the first injection, to be repeated in from eighteen to twenty-four hours if there is no improvement; a third dose after a similar interval if necessary. For severe cases in children under two

years, and for mild cases over that age the initial dose should be 1000 units, to be repeated as above if necessary; a second dose is not usually required. The dosage should always be estimated in antitoxin units and not of the amount of serum.

(2) *Quality of Antitoxin.* The most concentrated strength of an absolutely reliable preparation.

(3) *Time of administration.* Antitoxin should be administered as early as possible on a clinical diagnosis, not waiting for a bacteriological culture. However late the first observation is made, an injection should be given unless the progress of the case is favorable and satisfactory.

The Committee was appointed to continue its work for another year and was requested to issue another circular asking for the further coöperation of the profession, this circular to be sent out as soon as possible in order that physicians may record their cases as they occur through the coming year.

Sea Bathing.

HAROLD WILLIAMS, M. D.,

Professor of Children's Diseases, Tufts' College Medical School.

As the time has now come for the annual exodus of our patients to the shores of the high-sounding sea it

seems to the writer that a few words in regard to sea bathing, embodying the experience and speculations of

fifteen years of practice at the sea-shore, may be of interest to your readers.

While sea-bathing is generally regarded as a tonic for healthy persons, it is the custom among many physicians to caution their patients against it when they feel that any possible risk may be incurred, thus unconsciously following Punch's precept to those contemplating matrimony. By this wholesale interdiction many persons are deprived of a recreation and tonic which might be of decided benefit to them, if properly employed. It is with the view to consideration of what classes of invalids sea-bathing is admissible, and under what restrictions it should be recommended, that this paper is written.

The physiological effects of the sea-bath are, first, the shock which is caused by the immersion of the body in an element colder than the air, giving rise to a chilling of the surface of the body. This combined shock and chill contracts the vessels of the skin and drives the blood into the reservoirs in the interior of the body, causing what is aptly described by older writers as "internal congestion." Then follows the reaction. The respiration and the heart's action are accelerated, the blood is driven to the surface again, and there is a sense of exhilaration, stimulation and pleasurable excitement. The bather exercises more or less violently: if he swims, he takes in so doing, a form of exercise which is probably more

beneficial for the respiratory organs than any other form of exercise, as the motion of the arms above the head and the forced inspiration thus cause the fullest possible expansion of the lungs. To this forced inspiration and drawing upward of the chest walls by the accessory muscles of respiration, is due the immense lung capacity of professional swimmers. I have seen an instance of a professional swimmer who could increase the circumference of his chest seven inches by forcible inflation.

As the bath is prolonged, the bather becomes cold; if longer prolonged, he becomes chilled. The beginning of this sense of coldness should be the physiological duration of the bath. After that, the heart's action becomes more and more feeble; the blood is driven less and less forcibly to the surface; the internal venous system becomes engorged; the lips become blue and cyanosis takes place. After the bath there is a second reaction; the skin is still further stimulated by the rubbing it receives and by the small particles of crystalized salt which adhere to the surface and act as a greater or less stimulant and irritant, according to the sensibility of the individual skin. The bather, if the bath has been for him a physiological one, has been benefited in several ways: by the shock, which has acted as a tonic to his nervous and circulatory system; by the loss of heat, which is two-fold: first, by the immersion in a colder medium; and second, by the increase of the cutane-

ous circulation: by the stimulation caused by a pleasurable exercise; by the forced and full expansion of his lungs, and by the general tonic effect which the salt water exercises upon his skin.

Wintermitz and his assistant have found, moreover, "that cold baths produced an increase of the red corpuscles and also of the white with a 14 per cent. increase of the hæmoglobin. The maximum effect was sometimes manifested an hour afterwards and lasted often two hours. He regards this as due to increased activity of the heart and circulation and improved nerve tone, the red and white cells being driven out of organs in which they are accumulated."

Such a tonic I believe to be admissible for nearly every one, provided certain rules are followed, and as the result of experience in this regard, I am accustomed to lay down the following rules:

I. Sea-bathing is admissible for all healthy persons excepting the very young and very old. Persons over *seventy-five*, or under *four* years of age, are better off without indulging in sea-bathing. The possible good it may do them is not commensurate with the possible harm.

II. Sea-bathing should not be indulged in when very tired, or heated, nor within two or three hours after a meal. If indulged in during the digestion of a meal, the latter is apt to be retarded or arrested, and headache, intestinal disturbances, colic and convulsions sometimes occur.

III. The bath should not be prolonged after the sense of chilliness is experienced, and should be followed by active friction of the skin.

IV. The bather should exercise freely in the water. If reaction does not follow after sea-bathing when the above rules are regarded, it should not be indulged in.

V. Children should be allowed to become acclimated before bathing in the sea, the time required being from one to two weeks.

VI. For those who are not robust, the shock of the plunge should be diminished as much as possible by gradual entrance into the water.

VII. The ears of persons predisposed to middle ear catarrh, or with relaxed membrana tympani should be protected. I have repeatedly seen rupture of the drum follow from diving, and inflammation of the drum from the sudden entrance of the cold water into the ear. Plugging the auditory canal with surgical wool I have found the best protection against these possibilities as absorbent cotton or ordinary cotton wool is with difficulty retained in position.

VIII. Robust persons who bathe immediately after taking violent exercise should wait until the frequency of the respiration and the heart's action become normal before taking a cold bath.

The above constitute the almost self-evident rules which should govern sea-bathing though it is surprising to see how generally they are disre-

garded. It is with respect to the sick that the physician is more often puzzled in giving his opinion, yet if sea-bathing is a tonic for the well, we should expect that, as such, it would be of benefit to the sick under suitable restrictions.

In many cases of consumption of the lungs, and in convalescents from diseases of the respiratory organs, it is undoubtedly of great benefit, though in such cases the above rules should be rigidly enjoined and the bather should be instructed to reduce the shock to a minimum by gradual entrance into the water.

The same holds true for women during pregnancy. I have known several cases of women who daily bathed in the ocean during the first six months of pregnancy with no ill effects. Lactation is another subject upon which the physician is often consulted, and in regard to this condition I may say that I have never seen ill effects following bathing during lactation, provided the above rules were carefully followed.

In certain cases of diseases of the heart, I believe properly restricted sea-bathing of distinct value. It is to be regarded as a cardiac exercise similar to hill climbing and suitable for such cases as hill climbing is prescribed for; but as in pregnancy and lactation, the shock of entrance into the water should be reduced to a minimum. The success which has been achieved by the introduction of the Nauheim and Scott system of treatment of heart disease would

seem to confirm this assertion.

In regard to diseases of the kidneys, it seems to me that stimulation of the skin is of distinct value, but it is especially important that the bather should not experience the secondary sensation of cold which follows undue prolongation of the bath. I have examined the urine of several healthy people before and after bathing; and as the result of a limited number of observations, have found that a urine which was normal before bathing and normal under the observation of Rule III, would contain albumen if Rule III was not observed. In one instance the urine of a healthy man showed one per cent. of albumen after an undue prolongation of his bath. The presence of this albumen I ascribe to passive congestion of the kidneys, which in a person suffering from nephritis could not fail to be hurtful.

Nearly all persons of disturbed function are benefitted by the tonic action of sea-bathing. Especially is this true of many cases of neurasthenia and neuralgia, the former because of the stimulation given to the nervous system, — the mild and exhilarating exercise and the occupation of mind, — also probably from its suggestive effect; and the latter, from similar reasons and the added benefit derived from accustoming the skin to sudden changes of temperature.

Rule V I regard of much importance in the case of children. Repeatedly I have had cases of headache,

hyperexia, tonsilitis, intestinal disturbances, and convulsions, follow after the first bath, in children apparently previously well, when this

rule was not obeyed; but in no instance have I seen them occur as caused by sea-bathing, if the above rules were followed.

The Evolution of Girls.*

*An original abstract of a paper read before the Section of Diseases of Children at the Atlantic Meeting of the American Medical Association, May 8, 1896, by Harriet E. Garrison, Dixon, Ill.

Popular opinion says woman's brain, whatever its capacity, must be made to hold a certain amount of book lore.

One of the weightiest problems for scientists now to solve is how to evolve from the tiny brain force of the newly-born child, the vast intellect of the modern higher woman, with the least expenditure of nerve energy. The majority of women are victims of nerve exhaustion. Now, can it be prevented?

If child nurses can be taught to watch the promptings of nature, and assist her in her work, the task would be comparatively an easy one. The mother wastes all her energy in repining from the time she believes a new spark of life has been kindled, or spends her nerve force in a vain effort to have a perfect child.

When called to prescribe for the three weeks old child of one of our very highest women, a university graduate, she said: "I was so anxious to have my child well born that I studied and practiced every detail of

diet and living laid down in Tokology and several kindred works, but I almost died when baby came, and he is always as you see him now—continually unhappy." I replied: If you had rested your brain by pleasant reading; eaten what was wholesome in reasonable quantities, at accustomed times, and then allowed nature to care for it without spoiling her work by torturing yourself with imagining that the food would injure you or your child; and had also added to the well-being of your physique by light agreeable exercise, the most of it taken in the open air, you might have stored up sufficient nerve force to have made your labor more easy and your child would have been in as good condition as he is now, and my experience tells me he would have had more vitality.

The purpose of this article is not to call attention to the clothing and diet necessary to the evolution of girls, but to point out some of the things which have been overlooked.

We will now glance at some of nature's indications for their development.

The cells which control the higher

attributes are located in the anterior lobes of the brain, while those which control the animal functions of motion and nutrition are in the posterior or central regions. The natural mechanism of labor compresses the anterior part of the head into the smallest possible space while the other parts undergo less pressure. This is made possible by the size of the anterior fontanelle. In this way nature cares for what is necessary for the life of the child and in other ways provides for the development of the higher brain.

Brain material like everything else must have room to grow; and there can be little growth in a part which is compressed. It is easy to tell in a young child by the shape of the head, when it has been left for very much time in one position. The part upon which it has been allowed to lie will lose its oval form and become flat, and the substance beneath will be compressed.

Nature teaches that a girl is first a pronate, then a four-footed, after which she becomes an erect animal. If the girl is allowed to follow the dictates of nature the higher attributes of the brain will develop as she slowly evolves from one animal type into another. But here our higher civilization steps in and instead of allowing the embryo woman to develop along nature's lines and squirm, kick and roll through early infancy, she is forced by pillows and props into all manner of unnatural positions. Right here we must in-

struct our nurses to refrain from holding the baby constantly erect, but to occasionally place the child in a position where the front brain will be the most dependent part. The nurse should also be instructed not to prop the child in a sitting position until the muscles and organs are sufficiently developed not to be injured; and then frequently change the position. Girls are too soon placed upon their feet and encouraged to walk.

In girls the evolution from one animal type to another should be made very slowly. Not alone to give the higher brain a chance to develop by the pronate posture and the position assumed in creeping which makes the anterior lobes the most dependent part; but also that the uterus and its ligaments may be properly developed that they may stand the strain brought on them when the girl evolves into a woman.

A study of the uterus leads me to look for an infantile or flexed uterus in a child who has never learned to creep, and this belief has been confirmed by examination.

When the child creeps the intestines gravitate towards the diaphragm and the uterus relieved of pressure enrolls and assumes the normal position. A child creeps a short space than rises to its feet, stands a minute when it again begins creeping, thus alternately relaxing and stretching the uterine ligaments.

After infancy is past the girl should be urged to rival her brother in all out-door sports which will de-

velop strength of bone and vigor of muscle.

Our evolution has now developed our girl into such a little perfect animal that she may endure the strain of sitting on a bench at a desk, for long weary hours, to have crammed into her head material which there is not sufficient time given the brain to assimilate. If some social economist would only evolve some plan by which the brain might be trained to think and reason without this great waste of energy.

But if our girl must pass through this grind she must be prepared for it in the best way possible.

To supply the higher brain that it may not suffer unduly we must suppress other nerve activity. A great deal of nerve energy can be economized by delaying the evolution from girl-hood to woman-hood by proper hygiene and medication. A few minutes rest with the pelvis higher than the shoulders, after returning from school, with plenty of exercise in the open air, will minimize the baneful effect of prolonged sitting in the school-room.

The exercise should be vigorous and spirited that the greatest amount of good may be derived with the least expenditure of time. If mili-

tary drill benefits the boy, then it is more beneficial to the girl as her organs sustain more injury if she does not carry herself properly, and the girl is more in need of the discipline as she is so seldom taught self-control.

If learning to ride a bicycle will develop this talent in the girl it will have done a grand good work.

All sensational literature should be banished from a girl's library; and she should be inured, at an early age, to a cold plunge bath.

No medication should be used unless the lassitude with indisposition to exercise, which sometimes denotes the approach of woman-hood, appears.

The medicines which in my experience have been most beneficial in calming the erotic nerve center, whose activity so much retard those of the higher brain, are *viburnum*, *prunifolium*, *cimicifuga*, *racemosa*, and more beneficial than all for this purpose is *helenin* the alkaloid of *Inula Helenium*.

Above all the mother should be taught that the nerve energy of the girl must be in every way conserved if she passes through the high school in safety.

REVIEW OF PÆDIATRY.

NERVOUS DISEASES IN CHILDHOOD.

The seventh series of the Medical and Surgical Reports of the Boston City Hospital, has among its many valuable papers several of special interest to the physician who devotes much time to children's diseases.

In one of these "The Influence of Overwork in School in the Production of Nervous Diseases in Childhood," Dr. Philip Coombs Knapp gives the result of his study of 150 cases of nervous disease in children between five and fifteen years of age. 80 of these were boys and 70 girls. As was to be expected chorea leads with 95 cases. The next most frequent are epilipsy, 11 cases; hemiplegia, 9; hysteria, 6; peripheral paralysis, 6; cephalalgia, 5. Less frequent with cases of diphtheritic paralysis, anterior poliomyelitis, tumor of brain, concussion of brain, feeble minded, insanity and torticollis. The greatest number were ten years of age, gradually increasing from five to ten and decreasing again to fifteen.

Dr. Knapp believes that the causation of nervous affections in school children is far from a simple question. For much mental work, bad air, unsanitary surroundings, cramped positions, imperfect light, lack of proper exercise, and exposure to infectious diseases do have a large influence. But these evil influences may be and should be all removed.

Heredity, injury, infectious diseases, and bad food are all very important. The second dentition and puberty are also largely influential. A special cause, however, can rarely be assigned. Several causes usually work together and

"overwork in school is often merely the last straw."

Moreover it is impossible to say what amount of work is injurious.

In only 21 of these 150 cases was Dr. Knapp able to trace any influence of school work. In several of these it was plainly secondary.

"It is of course hardly to be expected that over-work in school would have any influence in producing structural changes in the nervous system but it is of interest to note that it seems to have as little influence in the production of epilepsy and hysteria. A second point worthy of note is, that while the ordinary result of overwork in the adult is neurasthenia, we find no case of neurasthenia in these hundred and fifty children. Although neurasthenia is one of the commonest nervous affections, forming nearly eleven per cent. of our two thousand consecutive hospital cases, it is rarely seen in children. On the other hand, in the present series of cases we find a history of possible overwork only in cases of chorea. Chorea forms over seven per cent. of these two thousand cases referred to, but it is almost as rare in adults as neurasthenia in children. This naturally leads us to ask whether chorea is the manifestation in the child of that condition of nervous break-down from over strain, worry, etc., which in the adult we call neurasthenia." "In the present series of cases only nine, or less than ten per cent. of the cases of chorea gave a history of any very excessive school-work and in most of these cases other factors were also present. If, therefore, school overwork be a factor in the production of chorea, it

must be of minor importance and I am much more disposed to view chorea as an infectious disease than as an indication of nervous break-down from overwork, corresponding to neurasthenia."

But after the age of fifteen, when the average child will not stop as before that age if tired, then overwork in school becomes a very important factor in the production of nervous disease.

A STUDY OF THE BLOOD IN CASES OF TUBERCULOSIS OF THE BONES AND JOINTS.

Dr. John Dane, Assistant Surgeon to the Infants' Hospital, Boston, presents a paper with this title which shows much careful observation and thoughtful study. Forty-three cases are reported including children suffering from tubercular arthritis of the hip joint with and without abscess, vertebral tuberculosis with and without abscess and a few other tubercular affections such as tubercular osteomyelitis, etc. In age they varied from twelve days to three and one half years.

The results of his study are very important because his paper furnishes the first authentic observations in this line. He finds that—(1) Most cases of tuberculosis of the bones and joints do not decrease the number of red corpuscles in the blood.

(2) They do, however, affect the percentage of hæmoglobin, giving rise in fact to a mild degree of chlorosis.

(3) The leucocyte count seems to bear no direct relation to the temperature.

(4) High counts, especially in hip disease, point to the probability that there is or shortly will be an abscess formation; but low counts do not preclude the presence of abscess, especially in cases of long standing.

(5) Where, in connection with a low leucocyte count an abscess is found to exist, the pus from it is sterile and the case is generally one of long standing.

(6) In the presence of an abscess, a low leucocyte count generally indicates the absence, and a high count the presence, of a secondary infection with pyogenic organisms.

(7) Cases where, at the primary operation, the pus has proved sterile, show an increase in the leucocyte count when the wound becomes infected with pyogenic organisms.

(8) High leucocyte counts do not always affect the differential count.

(9) Cases with a traumatic origin are generally accompanied by a high leucocyte count and run a more severe course.—*Boston Medical and Surgical Journal*, May 28, June 4 and June 11, 1896.

THE EVOLUTION OF INTUBATION.

As might be expected the annual address of the President of the American Pædiatric Society in this subject is full of interest. The name of Joseph O'Dwyer is inseparably connected, in the minds of all trained in the technique of the operation, with intubation.

Who that has felt the satisfaction of seeing a little struggling, choking child suddenly become quiet and fall quietly asleep, after the introduction of one of his tubes, has not felt thankful to the man from whose brain emanated this idea?

True, they usually died eventually but there was none of the dreadful suffocation. And now with the addition of antitoxin to the treatment we are hearing of and seeing results that ten years ago would have seemed miraculous. Dr. O'Dwyer states that he was led to think of intubation because of the complete failure of

trachæotomy in the New York Foundling Hospital. From 1869 to 1882 there was not a single recovery of the cases operated in that institution.

At the outset catheters were tried but could not be kept clean. Then came the bilvalve tube with a spring at the distal end to hold it in place and patent. With the aid of this the first patient of croup operated upon to be saved in thirteen years recovered. The bivalve was in many ways unsatisfactory however, and was given up.

Next came the tube of plain oval form and about one inch long. Soon a mouth gag was found necessary to escape from the firmly closing jaws of some children.

With one of these tubes the first recovery by intubation alone was recorded in 1884,—the case in 1882 being also trachæotomized. As the short tubes were expelled too easily they were made much longer and if coughed up from their bed could not get out and were promptly pushed back into place.

These were soon shortened again and a second shoulder, half an inch down, put on the tube to give a furrow for the vocal cords to rest in. It was found that if this was large enough to hold the tube in place it furnished an effectual barrier also to the instrumental removal of the tube.

Hence Dr. O'Dwyer soon began to use the expansion in the middle of the tube now known as the retaining swell.

Gradually the best size and proportion for this was determined by experiment and the angles and surfaces which produced ulcerations were altered and smoothed.

In 1886, his extractor was perfected and although the doctor admits that it is unsatisfactory he thinks there is none better.

Several devices for the relief of that

well recognized danger of the closure of distal end by loose membrane are mentioned. The best seems to be a large calibre tube to be worn for only a few hours. The writer also relates his experience with an adult case of chronic syphilitic stenosis and tells of some tubes he has invented to be used with Bell's apparatus for artificial respiration.

But it is as the inventor of the "intubation set" that he will be always remembered and honored. It is a real pleasure to find the article illustrated by his photograph.—*Archives of Pædiatrics*, June, 1896, p. 401.

THE HOME MODIFICATION OF MILK.

Under the above title John Lovett Morse A. M., M. D., adds to his already considerable reputation as a pædiatricist by an article of much practical value. He does not believe in any of the patent foods, each one of which he finds open to important objections, such as containing starch, cane sugar or bacteria.

The nearest substitute for the ideal food—human breast milk—he believes can best be prepared from cow's milk. This method though not original is certainly practicable, and has been thoroughly tested in large clinics at the Boston City Hospital and the Infant's Hospital. For the modification, clean glass bottles, glass siphon tubes, thermometer, family measuring glass and cotton may all be purchased for less than \$2.00. The constituents, milk, sugar, and lime-water are also comparatively inexpensive.

The milk is allowed to stand in closed clean glass jars for 6 hours and only the upper one-quarter is used. This is properly diluted by the addition of water and made of the re-

quired alkalinity and sweetness with lime-water and milk sugar. The whole is then carefully Pastuerized.

In an hour's time all the food for a day's use may be prepared. We quote, "A three months old baby will need about seven feedings of four ounces each of a milk containing fat 3.00, sugar 6.00, albuminoids 1.00. The formula for this mixture of an alkalinity of 5 per cent. is as follows:

R	Upper one-quarter	8 ounces
	Lime-water	1 1-2 ounces
	Water	18 ounces
	Milk Sugar	1 3-4 ounces

This mixture requires one quart of milk a day, which will cost 49 cents a week, while the milk-sugar will cost 31 cents a week. The lime-water and cotton, may, as before, be estimated at 4 cents a week. This amounts to 84 cents a week."

Other sample formulas are given for 2 weeks old and 8 mos. old infants.

The simplicity and practicability of the method will appeal to the general practitioner.—*The Boston Medical and Surgical Journal*. June 4, 1896, p. 557.

TRIONAL FOR CHILDREN.

In the "Medical Annual" for 1896, under the approving editorship of Dr. H. D. Chapin of New York, Dr. A. Claus is quoted on the use of Trional in the insomnia of children. He has employed it in nocturnal terrors, epilepsy, dentition, gastritis and in two cases of insomnia following measles. His conclusions are as follows: (1) Trional in the dose of 1-3 to 22 grains, according to the age of the child is a brilliant hypnotic. On the following morning neither headache nor heaviness of the

head was noted. Patients do not become accustomed to it. Physiological sleep was favored. Sleep occurred in ten or fifteen minutes after its administration.

(2) Trional has no very pronounced effect on insomnia the result of pain.

Prescriptions.

R	Chloral Hydrate,	
	Camph. Pulv.,	aa 3 ss
	Acidi Carbolici,	gtt x
	Balsam Peru.,	3i
	Menthol,	gr xx
	Ung Zuici Oxid.,	gs. ad 3i
	M. fr Unguent.	

Sig. Apply night and morning for the itching of Eczema. — *Clinique*.

R	Chloral Hydrate,	
	Camph. Pulv.,	
	Gum Acaciae,	aa 3i
	Triturate till liquified and then add	
	Cerat. Simpl.	3i
	M. ft. Unguent.	

Apply to the affected surfaces in Urticaria of children. — *Canada Medical Record*.

ON THE DIFFERENTIAL DIAGNOSIS OF VARICELLA AND VARIOLA. WITH THE REPORT OF A CASE IN POINT. By ISADORE DYER, M.D.

In studying the eruption of diseases which affect the skin, there are certain essential points of consideration. These apply to all skin diseases and to the exanthemata as well.

Before going into the details of these points of diagnosis, I wish to make the general propositions: first, do variola and varicella differ, and second, if so, in what do they differ?

In all eruptions, then, the location, the distribution, and the arrangement of the eruption are important, while the characteristics of the component lesions determine the disease.

The duration, course, history and

attendant symptoms are important, but secondary, considerations.

In considering variola and varicella along these lines, we see at a glance important differences.

Location.

Variola—face and extremities, particularly.

Varicella—trunk, particularly: face and extremities, unusually.

Arrangement.

Variola—closely aggregated lesions, often confluent, particularly in the vesicular stage, clusters frequently seen.

Varicella—either single, widely separated lesions, never inclined to confluence, or in groups of two or in groups of two or three, maintaining throughout the integrity of shape and form.

Characteristics of the Individual Lesions.

Variola begins as a hard, shot-like papule, as an efflorescence, even involving the mucous membranes. After a distinct period, these change to vesicles, all lesions undergoing this change—umbilication customary. Lesions not umbilicated unusual in variola—vesicles change altogether into pustules, always deep seated, beginning always in the papillæ themselves, heal as scars, or pits after a long period of time.

Varicellar lesions large, irregular in shape, spherical in form, globular at times, superficial always, rubbing off the skin easily. Papular stage indefinite, so short as often to be missed, and lesions seem to begin as vesicles. Often dry as vesicles, pustulating uncommon, umbilication rare, exceptional when it does occur, and

then only in a few of a number of lesions. Eruption of lesions heals by drying, or peeling, leaving, at most, only a slight pigmentation—never scars, unless abscess from secondary pus infection. Pitting is never seen.

Course of the Eruption.

Variola—slow, periodic changes in eruption from papular to vesicular or pustular: never find pustules and papules together. Never under three weeks, even in mild cases (Hebra, Liveing, Kaposi, Morrow). Usually four weeks or longer.

Varicella—rapid and irregular course, recurrent crops. May begin to heal on second day of eruption: find papules, pustules and vesicles side by side. No periodic change; usually completed in fourteen days. Sometimes less, rarely more.

History and Attendant Symptoms.

Variola has prodromata more or less severe, but always present characteristic fever, angina common, headaches, fever marked by exacerbation as the eruption becomes pustular. Depression throughout, more pronounced as the disease advances, and at the pustular change.

Finally varicella is not an uncommon disease, occurring independent of season and place.

Variola is epidemic and not occurrent otherwise, and is not a common disease. Is occurrent most in colder weather.

Varicella does not protect against variola.

Variola protects against variola, and recurrent cases of variola are rare, and occurring, occur in a modified form.

There is no case on record of a relapsing variola.

I have presented these different

points, to the more saliently bring out the main features of the case I am about to report.

That there is some reasonable purpose in this report will likely appear to all, and I wish to ask the free discussion of the case as one of importance, not only in its own clinical features, but as exercising some direct reflection upon the individual physician's position in his relation to the official health authorities.

There may perhaps be some who believe that the patient deserves consideration also.

On November 8, I was requested by the visiting physician of one of the wards of the Charity Hospital to see a case of skin disease, to express an opinion upon it and to prescribe.

On entering the ward of the hospital, I met one of the house officers, who additionally invited me to see the case.

With the house officer and Dr. Menage, my associate at the hospital, I made a careful clinical examination, with the following result:

The patient was a negress, about twenty years of age, in good physical condition, with the following skin manifestations:

I.—*The eruption* was distributed in discrete lesions over the chest, abdomen and back. On the face, there were a number of lesions, single, and widely separated. On the arms and legs, the lesions were fewer and sparsely located. On the tongue and over the hard palate, there were likewise discrete lesions.

II.—*The eruption* consisted of irregular-sized vesicles on the body and face, while the lesions on the tongue and the mouth were for the most part pustular. I called the attention of the gentlemen with me to this phase of the eruption, and also to the fact that there was an absence of any other evidence of inflammation

in the mouth and throat.‡

The lesions were rounded, hemispherical, and irregular in shape. It was only after a careful search that any umbilication was found. This could be seen only on two or three lesions on the right side just below the region of the floating ribs.

On questioning and cross-questioning the patient, it was discovered that she had experienced no prodromic symptoms whatsoever, and felt at the time of examination in excellent health.

The eruption had been out, she said, only two days and had come out gradually. The lesions were more carefully examined, and were found to be loose walled, some even flabby. In touching one, on the belly, the walls gave way under my finger, the top slipped off, leaving a smooth, reddened spot behind, when the exudate was wipe away.

An unqualified diagnosis of vari-cella was made by me, which was concurred in by the house officer and by Dr. Menage.

The case was received by the hospital and admitted.

On the morning following I again saw the patient. There was plain evidence of resolution of the condition. Fully half the lesions on the face had dried. Those on the body had in many places been reabsorbed, leaving behind the little crumpled epidermis, which is customary after the resolution of a vesicle.

The general condition of the patient had not changed.

I advised treatment, and said that the case needed no especial watching, giving a prognosis of a few days.

The same night I learned that the patient had been sent by the Board of Health Inspectors to the small-pox hospital.

At the invitation of the President of the Board of Health, who had

resented my repeated expressions of opinion in the case, namely: "that a case of varicella had been sent to the small-pox hospital." I visited the pest-house on the 12th of November.

I found the patient in bed, in a room with another, sick with small-pox. I conclude.

She arose with ease at my request, and I for a third time made a careful examination.

I found the following state of affairs:

1. There were no lesions on the face. Some pigmented spots, dark or whitish red, marked the site of the desiccated lesions.

2. There were no lesions of any sort in the mouth and no evidences of eruption except a little red spot on the right underside of the tip of the tongue, where a lesion might have been.

3. The body presented both vesicles and pustules in stages of disintegration, some flabby, some half peeled, some already dried and some having peeled, leaving whitish, smooth spots behind.

All the lesions on the arms and legs had dried.

4. There were no constitutional symptoms. In spite of repeated questioning and cross-questioning, the patient denied sore throat at any stage or time of the disease, and at this examination there was still no evidence of it.

I reiterated my expression of opinion in the case and passed the comment that such a clinical picture on the sixth or seventh day confirmed beyond peradventure my original diagnosis of varicella. I insisted that a case of varicella had been sent to the small-pox hospital, where she was confined.

The case remained at the pest-house notwithstanding.

On November 24 the patient applied at the Charity Hospital for ad-

mission in another service. On the following day the patient was the second time transferred to the small-pox hospital with a diagnosis of variola.

A few days subsequently I learned she was in the hospital with confluent small-pox. Within the past few days I was told that this patient had died of small-pox.

I might dismiss this subject without further comment, but I prefer, if not trespassing too much upon your time, to draw a few conclusions.

I would call your attention for consideration to the following points:

1. The character of the eruption in the case when I saw her.

2. The history and course of the eruption.

3. The date of admission and discharge from the small-pox hospital (November 9, November 18).

4. The date of re-admission to the small-pox hospital (November 26).

5. The more than improbability of a recurrent attack of variola.

First. Because the patient was discharged from the pest-house not later than the 18th (if earlier, all the more argument, for variola even in varioloid types never runs a course of less than three weeks).

Second. The small-pox was manifested on the 25th, or just seven days after the discharge from the pest-house, and just sixteen days from the date of first admission to the pest-house.

The period of incubation of small-pox is from ten to fourteen days.

6. This suggests that small-pox was contracted in the pest-house.

7. It would be an unique case in medical literature to find a "mild case of varioloid," as diagnosed by sanitary inspector, followed within a week or eight days by a typical case of true variola, confluent in type, and malignant in its history and outcome.

Gentlemen, we are entitled to differences of opinion, and the weight of proof rests with those who have the weaker side. I believe I have made a fair presentation of this case and its history.

When there is a reasonable doubt in such an instance much harm may result to the patient, and much discredit reflect upon the health authorities if a mistake is made in sending one with a similar disease to a hospital for small-pox, where death may be the forfeit of the patient.—*New Orleans Medical and Surgical Journal*, Jan., 1896.

SLEEP IN ITS RELATION TO INSANITY.

The following taken from the report of Dr. Selam H. Talcott, Supt. of the Asylum for the Insane at Middletown, N. Y., is suggestive, whether we can agree with the conclusions or not:—

“The habit of too early rising is one of the saddest and surest means by which insanity may be acquired. This habit was originally formed or forced by our Puritan forefathers in New England. Probably many of us can remember the rude shocks by which we were awakened, when youngsters, early in the morning, and before our brains and bodies were sufficiently recuperated by sleep from the exhaustions and excitements of the previous day. Some of us can remember the rousing old command, ‘get up now, right away, or you can’t have any breakfast.’

“There was a command, coupled with a threat, and applied in such a manner as to kindle in the heart of the sleeping lion, or rather boy, the fierce fires of a stubborn resistance. The inalienable rights of growing boyhood had been invaded, and the hot, burning passion of anger was

excited in the mind of the boy at the very outset of another day’s experience. When roused from sleep by such a startling injunction, the boyish victim remained ‘as mad as a March hare’ all day. A peremptory command to get up, when one’s sleep is as yet unfinished, is a command which grinds the soul, curdles the blood, swells the spleen, destroys all good intentions, and disturbs for the entire day the mental activities of a boy, just as the tornado disturbs and levels with advancing ruin a forest of mighty pines.

“One of the most striking differences between civilization and savagery, between the environments of organized society and the freedom of the forest, is the enforced habit of too early rising on the part of the young. And to this habit we may justly ascribe many of the unfortunate experiences of youth; and many cases of early insanity, of resistive melancholia, of abject dementia, have arisen from this deplorable cause. The free and lazy savage gets up when he gets ready, and rarely or never becomes insane.

“After the habit of waking and rising at five o’clock in the morning has been formed, under the injunctions and threats of unwisely ambitious parents, it is exceedingly difficult in later life to overcome it. Even when we are privileged to sleep later in the morning, through some delectable turn in the wheel of fortune, those of us who have been the victims of early rising in youth are apt to awaken at four or five o’clock, and lie awake for a long time before we can again woo the gentle goddess of sleep.

“Some farmers’ boys have saved themselves from early rising, and likewise from insanity, by going into the ministry, or by entering the medical profession.

"A true philosophy of life will be exercised when the young are permitted to sleep to the full extent of necessity and ability, during the growing years of life.

"Another habit, but a less pernicious one, is that of rising too late in the morning. Some children are indulged to an unreasonable extent, are permitted to lie in bed after they have slept their full of sleep, after they have fully awakened, and after they should be up and dressed. The boy or girl who lies in bed after needful rest has been secured is the person alluded to in scripture as one who folds his hands and says to himself 'A little more sleep, and a little more slumber' and to such a person the injunction 'Go to the ant, thou sluggard,' is an appropriate one. The young person who practices lying in bed when he ought to be up is a person who stultifies his own powers, who dawdles with fate and who puts himself constantly in the line of temptation to form other most unfortunate and destructive personal habits."

ANTHRAX.

Dr. C. C. McCulloch, of Fort Ringgold, Texas, reports:

"Mary D., a female child, eight years of age, claimed that she had been waked in the middle of the night by a small insect biting her on the lower part of the left cheek: that she had killed the insect, but was afterwards unable to find it and discover its kind. There was not much pain at the time, but on waking in the morning the place of the bite was the seat of a very violent itching and burning sensation, and there appeared a small red pimple, which during the day became larger and developed into a blister with a large red and inflamed area around it, somewhat raised

above the general level of the cheek. The inflamed area then rapidly increased in size, the center of the vesicle turning black and spreading and the face swelling. There was a great deal of pain in the affected area after the swelling began. This was the history given by the patient and her friends up to the time I took charge of the case; she had been sick and unable to sleep for two days, felt feverish, had no appetite, and was very restless. At the lower part of the left cheek was a black circular necrosed area nearly the size of a silver half dollar. The surrounding tissue was indurated, red, and covered with small vesicles to a distance of two or three inches in every direction. The face was swollen on both sides so as to make the features almost unrecognizable; the tissues of the neck were also swollen to a great extent. The swelling, except around the necrosed area, was not indurated nor so hard as to pit on pressure, but was loose and puffy; all the cervical glands that could be palpated were considerably enlarged on both sides, though especially on the affected side. The temperature was 103° F., the pulse fairly strong and 120 per minute. The patient conversed rationally, though she spoke with difficulty on account of the great swelling of the tissues of the face. She claimed to have no difficulty in breathing or swallowing; was very restless and in considerable pain. Had vomited twice on that day, but had no diarrhœa. She had no appetite; had great thirst; the breath was horribly offensive. There was a considerable flow of saliva.

"It was too late when I first saw the case to excise the affected area, which comprised the greater part of the left cheek and left side of the neck. If such operation had been practicable, healthy tissue would have

been infected during an operation, and in my judgment the patient stood a better chance for her life without an attempt at excision, though in a case seen early enough, of course, that is the only proper treatment. Vigorous antiseptic measures were, however, adopted: crucial incisions in the affected tissues, parenchymatous injections of carbolic acid (1-10) around the necrosed area, constant applications of bichloride of mercury (1-500) to the whole area, cauterization with pure carbolic acid, and ice bags to the swollen tissues, were the measures used locally. Internally were given nutritious diet and stimulants, opium being administered to relieve pain and procure sleep. On the next day (6th) the patient seemed somewhat better: the tumefaction had ceased to extend: there was no vomiting nor diarrhoea; the temperature was 101° to 102° , pulse 110, and after a good night's rest she felt better in every respect, suffered very little pain, and even had a return of appetite. On that night she asked the nurse for beefsteak, potatoes and beer. Indeed, throughout the course of the disease the general symptoms seemed remarkably mild when the intensity of the local condition was taken into account and the extreme malignancy and fatality of the disease.

On the morning of the 7th, however, I found her moribund, death being immediately due to asphyxia. The attendants stated that she had passed a somewhat restless night, but was perfectly rational and inclined to take her nourishment at the prescribed intervals: that about 5 A. M. she became unconscious and rapidly sank into the condition in which I found her. The swelling had not increased in extent, and there was evidently no occlusion of the upper respiratory tract by swelling or other-

wise. Death seemed to be due to a sudden overwhelming of the nerve centers in the medulla oblongata by the poison of the disease.

"No post-mortem was allowed. It did not occur to me at the time to inoculate an animal with the virus, but there was really no need of such confirmation of the diagnosis. The case was in every respect a typical case of malignant pustule as described by the text writers."—*Report of Surgeon-General, of U. S. A., 1895, page 39.*

DIPHTHERIA TREATED BY ANTITOXINE. Reported by DR. C. F. MASON, WEST POINT, N. Y.

"Private Moran, Army service detachment, living at the post near the soldiers' hospital, in a new house, clean and well kept, has four children, as follows: Mary, aged 13 years; John, 11 years; Julia, 9 years, and Annie, 7 years.

On July 8 John and Julia were sent to the hospital by their mother to consult me on account of swelling of glands in the neck. Neither complained of sore throat, and when questioned both stated that they had none: but an examination showed extensive membrane on tonsils and soft palate in both cases. On following them home I found Annie's throat in the same condition. The temperature in each case was between 100° and 101° ; general condition good. Mary's throat was normal: she was isolated from the other children: but on the 11th, membrane appeared in her throat also. The urine of all the patients was negative throughout, as shown by daily examinations. July 9: Temperature the same. Behring's antitoxine was administered hypodermically to each patient, as follows: John, 4 c. c.; Julia and Annie, 3 c. c. each. July 10: All doing well: membrane disappearing from all the

throats, but Annie has some in nose. Highest temperature, 99°. July 11: Mary taken sick; temperature, 100.5°. July 12: Membrane has spread extensively in Mary's throat, and is of a dark color and offensive odor. Temperature, 101° to 102.6°: swallowing difficult: seems very sick: two serum tubes inoculated from throat. July 13: All well except Mary, who is worse: Klebs-Löffler bacilli abundant in cultures from Mary's throat. After this date the recovery of the first three children was uninterrupted. On the 20th cultures were made from the throats of John and Julia: the one had no bacilli, but many cocci; the other showed Klebs-Löffler bacilli

still abundant. On the 24th cultures from Julia and Annie had Klebs-Löffler bacilli present. No more serum being available no further cultures were made. July 16: No improvement in Mary's condition: inoculated with 5 c. c. of the antitoxine serum. July 17: No change. July 18: Temperature, 98.8°: seems better, membrane slightly less. July 19: Much better; membrane thinning. July 22: Membrane all gone. From this time convalescence was normal. No treatment other than by antitoxine was used in any of the cases except a gargle of lime water."—*Report of Surgeon-General of U. S. A., 1895*, page 25.

American Orthopedic Association.

At the annual meeting of the American Orthopedic Association held at Buffalo, May 19th, 20th, and 21st, the following Officers were elected:

- Dr. Samuel Ketch, of New York, President:
- Dr. H. M. Sherman, of San Francisco, First Vice-President:
- Dr. W. R. Townsend, of New York, Second Vice-President:
- Dr. E. G. Brackett, of Boston, Treasurer:
- Dr. John Ridlon, of Chicago, Secretary.

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ORIGINAL COMMUNICATIONS.

Considerations on the Technique, the Difficulties and the Dangers of
Vaginal Hysterectomy. In Cases of Fibroma and in Pelvic
Suppuration.*

PAUL SEGOND, M.D.

PARIS, FRANCE.

At this time the operation of Péan has conquered its proper position, and although the remembrance of our struggles in the beginning is yet so fresh in my mind that I often wish to recall to attention the part taken by our first adversaries, it would be quite out of place for me to repeat before you this purely historical side of the question. If you do me the honor of being willing to hear from me some explanations on a question of practical surgery with which you are already acquainted, having approached it with that unceasing care never to follow anything but useful truths, for which you all here have the secret to so high a degree, I only have the chance of meriting in some extent your attention by attempting to imitate you. But, among the complex questions which must yet be studied for some time (true indications, remote results, etc.) it seems to me

that in your most recent writings your attention has been especially fixed on the technique itself of the operation, or rather I should say on its difficulties and its complications.

In truth this study of the difficulties and of the immediate dangers of the procedure is not merely a question of operative surgery, for the question is wider, and it is one which in spite of all which we have been able to say, still comes up as the burden of the argument of surgeons who yet think, with many among you, that we are giving far too wide an extension to the indications for morcellation.

Doubtless, they no longer deny the superiority of vaginal hysterectomy both in regard to the absence of any abdominal cicatrix and to its safety when it is well performed; they even recognize with us the utility of the ablation of the uterus, and, in this connection, it is not without interest to note that the actual arguments of

* Read before the American Gynæcological Society, New York, May 27, 1896.

all the partisans of ablation of the uterus by laparotomy, in case of inflammation of the appendages, are in every respect similar to those which we used to maintain in securing the triumph of the operation of Péan; they persist, however, in thinking that vaginal morcellation only retains its advantages in simple cases, and whenever a pelvic suppuration is somewhat too complex in its lesions, or a fibroid is somewhat too voluminous, they think that we are wrong in operating by the vagina.

Nevertheless, as I am one of those who have been for a long time contesting this point of view, I have every possible reason for taking up with you this particular side of the argument, in telling you what I have learned from my practice regarding the difficulties or the dangers of the procedure: a pretty extensive practice, for up to the present time I have performed about 600 hysterectomies by the method of Péan. I may add that in order not to prolong this article unduly I shall confine myself to the study of facts concerning hysterectomy for fibroma and hysterectomy for peri-uterine phlegmasia.

In order then to avoid all misunderstanding, permit me to specify particularly that I am speaking here only of vaginal hysterectomy performed after the method devised by Péan. This precaution may seem to you superfluous, but, nevertheless, I think it is necessary. At the present time it seems in fact that the name of the veritable creator of the method is too often forgotten, or at least, ac-

cording to more than one recent article, there would be a temptation to believe that certain procedures, put forward by this or that surgeon, have been perfected to such a point that they have a right of priority or of method: but this is perfectly erroneous. In so far it is not without advantage to state the circumstances with precision.

The methods of operating of any two surgeons can never be absolutely identical, but it does not follow that each one of these methods of operating is a new procedure: there are only personal adaptations. In emphasizing this truth we are doing only an act of simple justice, without depreciating in any manner the merit of the skill of the surgeons, now numerous, who are practicing and every day perfecting the operation of Péan. Let it be well understood then that the method of Péan is a unit. This method comprises a whole series of particular manœuvres, the object of which is either to morcellate the organ (cutting out cone-shaped pieces, transverse sections, etc.), or to destroy the action of its suspensory ligaments (hemi-section, total section, etc.): everyone ought to know these manœuvres, and to vary them according to particular cases, but it should be well known that no one of them can be invariably applied in all cases, or can merit the rank of a method. These facts being stated I approach my subject directly.

I will not recall to you the operative technique of morcellation in cases of lesions of the adnexa, it is

described at length in the thesis with which you are all acquainted, that of my pupil, Dr. Baudron. In regard to fibromas, however, I think it useful to point out for you in a few words the principal lines of the operation, as I advise its performance after having been instructed myself in the clinic of Péan.

Leaving on one side the very exceptional cases in which the narrowness of the vagina hinders the morcellation of a fibroma (for my part I have removed fibromas from virgins, and I may say that hardly ever up to the present time has the narrowness of the vagina prevented me from successfully performing a morcellation) three principal classes of cases may be met.

In the first group of conditions there are found pelvic fibromas and especially fibromas of the broad ligament which push the uterus towards one point of the pelvic wall and project strongly into the roof of the vagina. It is therefore the fibroma which ought to be attacked first of all, the hysterectomy comes afterwards, and is then only a very simple complementary procedure. In a second group, the neoplastic mass is situated above the uterus, which is pressed downwards, and the operation is in some sort reversed: the hysterectomy is preliminary and must be performed first, in order to attack the fibroma: In a third group, finally, and this includes the majority of cases, one or more fibromas are intra-uterine, and consequently the morcellation of the uterus must go on jointly

with hysterectomy, they are both in fact simultaneous. Let us, however, refrain from considering these complications, which are such that the steps necessary for operation are easily understood, and regard only the ordinary cases, those in which the cervix can be attacked first: I am accustomed to perform my manœuvres in the following order.

Incision of the vagina with the scalpel: liberation of the cervix on its two surfaces, with opening of the posterior cul-de-sac: application of two clamps with short jaws on the two uterine arteries: section of the base of each broad ligament: resection of the cervix: fixation of the posterior uterine wall with a strong double tenaculum: lastly attack and morcellation of the uterine body without previous hemostasis. Usually hemisection of the portion of the wall which is accessible, cutting out of a conoid portion (*evitement conoïde*) with the bistoury, or resections of various kinds, permit us to arrive without difficulty at the point where the organ is brought down by tilting it forward (*hiscule antérieure*) and the operation is finished under the best possible conditions. Of course it is understood that this is only a sort of operative formula which one must know how to vary according to the particular cases, but, such as it is, be assured that it corresponds to operative resources which are sufficiently complete to permit us to give a remarkable extension to the indications for morcellation. I think, in fact, and I am particularly desirous of

convincing you of the fact. I think I say that morcellation well performed, not only permits us to attack fibromas of small or moderate size but that it remains the operation of election whenever the upper border of the morbid mass does not extend beyond the level of the umbilicus.

This is as you know the proposition which I have maintained at the last French Congress of Surgery, supporting myself with a series of 66 cases gathered from my general statistics of hysterectomy for fibromas, and only comprising the cases in which the morbid mass to be morcellated, and weighing from 1200 grams to 4 Kil., mounted more or less clearly to the level of the umbilicus. These 66 observations gave me 50 cures and 7 deaths, the details of which are published in the bulletins of our congress. As I said in that communication, at the present time it is at least hazardous to base conclusions on statistics containing anything except indubitable success, but for all the reasons which I stated at length in the article of which I am speaking to you, I persist in thinking that my statistics, such as they are, suffice to show that vaginal morcellation presents all the characteristics of a safe and rational operation, subject to this one condition that the mass does not pass the level of the umbilicus.

And since I am speaking of mortality, allow me to say to you incidentally, that much as I admire the statistics of hysterectomy which only show a mortality of 2 per cent. to 3 per cent., I persist in thinking that

they do not show the reality, and that in considering them as anything else than exceptional series we should be exposed to very great mistakes. Doubtless it is quite true that in simple cases of lesions of the adnexa, for example, the mortality may be near 0 per cent. But when our patients are gravely diseased one would make strange errors who thought that he could get the same results, and hysterectomy has no more right to be considered absolutely safe than has laparotomy. As for fibromas, in my opinion they have, even less than lesions of the adnexa, the privilege of letting us expect invariable success. I have explained this point at the last congress of surgery, and I am not going over it again, but whatever may be said, I remain convinced that in women attacked by fibromas both laparotomy and hysterectomy will always be such serious interventions as to make it our first duty always to discuss the indications of each with the most extreme exactness. But I return to my subject.

By the foregoing I have told you how volume is not a counter indication to morcellation whenever this volume does not exceed the limits aforesaid. The answer has often been made, that when thus stated the formula was insufficient, and that besides the considerations concerning the upper level of the neo-plastic mass, many other factors, such as the dimensions of the vagina, those of the pelvis, the size of the uterus etc., ought to receive consideration. This

is perfectly just. It is quite clear that the morcellation of a fibroma may have its causes of dystocia, if I may use the expression, and that a fibroid uterus filling the two iliac fossæ will be much harder to morcellate than a fibroid mass which is both movable and narrow. But these are truths too evident to figure in the general formula of indication, and the more so since, up to the present time, neither the excessive width of a fibroma, its adhesions, or the narrowness of the route chosen to extract it have ever stopped me. Without in any way failing to recognize the refutations which clinical surprises reserve for too absolute assertions, I stand by the formula which I have proposed, and I repeat that this is exact enough in the immense majority of cases to enable me to refuse to our opponents the right to find in the volume or the connections of a sub-umbilical fibroma of any kind, an argument against us.

Among the other objections which may be made to morcellation, based on its difficulties or its complications, it seems to me that I ought to take account only of those which regard *injuries* of the *viscera* (bladder, ureter, intestines) and *hæmorrhages*. I know well that these objections are not the only ones, the peculiar friability of the uterine tissue, for example, deserves consideration. Rare in fibromas it is met especially in cases of inflammatory diseases, notably in post-puerperal lesions, and the difficulties which it gives us then are such that I have been the first to

advise that vaginal hysterectomy should never be attempted in the five or six weeks which follow childbirth. As a peculiar complication of the technique of Péan's operation I should also speak of post-operative *intestinal occlusion*, a grave complication, the history of which has lately been given by my pupil M. Giresse in his inaugural thesis, in which he shows that the vaginal route does not give any greater danger in this respect than does the way by abdominal incision.

Another objection made to vaginal morcellation concerns the consecutive *vaginal hernias* for which it is said to be responsible: this accusation is in my opinion void of all foundation, for, in women who have a perineum in good condition of course, I may say that I have never met the complication in question. But interesting as these heads of chapters might be, I evidently can only mention them to you, for to treat of them at length would occupy too much of your time, and I wish to reserve the few details for which I still have space for *hæmorrhages* and *wounds* of the *viscera*, in trying to demonstrate to you that these complications are easy to avoid, when one operates as one should, and that they ought consequently to be considered as complications far too rare to disparage the operation.

Let us commence if you will by *injuries* of the *bladder* and of the *ureter*.

Injuries of the *bladder* are possible either at the very beginning of the

operation, or in the course of the subsequent manœuvres. In the beginning, it is while incising the vagina, to liberate the anterior lip of the uterus, that there is a risk of injuring the bladder. Later the danger comes especially either from misplacement of a clamp, or from an unskilful, or too brutal, use of the specula destined for the protection of the bladder. It seems to me then to be easy enough to reduce to a minimum the frequency of the complication in question. At the beginning the slightest attention suffices. By moving the cervix a little up and down it is easy to recognize the place where the vaginal incision should be made without there ever being any need of catheterizing in order to discover it. The liberation of the cervix is then accomplished either with the aid of the thumb nail, or with a dull instrument, under the best possible conditions of security. The important point is to make this dissection down at the very level of the uterine tissue, which is scraped so to speak, and especially to carry it very widely towards the sides. Thanks to this last precaution nothing is more simple than to place the two first clamps on the uterine arteries close to the cervix with the certainty of avoiding the bladder. As for the peritoneal cul-de-sac I do not delay to search for it during this first stage. It ought to be opened during the following stage when the cervix has been entirely freed and when the corpus-uteri itself is attacked. This is the only way to reserve the possibility of

performing extra peritoneal hysterectomy in case of pelvic peritonitis with extensive adhesions.

Later the bladder is only really in danger from the use of the speculum introduced between the corpus uteri and the bladder for the purpose of protecting the latter. The remedy is then very simple, it is necessary to refrain from poking about blindly, and to be satisfied with gently pushing backwards the soft parts in front of the uterus, which is drawn down while using a speculum with a short blade. In this manner, we not only have the advantage of exposing neither the bladder nor the ureter, but also the field of action is not narrowed and there is more room to work in. By proceeding as I have just explained to you I, for my part, have not injured the bladder more than ten times at the most. I am therefore perfectly justified in calling this complication a rare one. In the cases of which I am speaking I have never discovered the vesical injury before the separation of the eschars; I have then cured my patients by a secondary operation; only once have I observed the wound during the operation and I was able to close it immediately. As for spontaneous cure I have never observed it.

A wound of the *ureter* is a much more serious matter than that of the bladder, but fortunately if the operation is properly performed I think it may be considered as a very rare occurrence. For my part in a total of 600 hysterectomies I have only wounded the ureter twice. In

the bulletins of the Surgical Society of Paris, of last year, I have given the necessary details concerning the precautions to be taken to avoid this complication and doubtless you have read them. Permit me, nevertheless, to make a resumé of them for you in a few words.

The injury of the *ureter*, of which the diagnosis is never made before the separation of the eschars, may be produced in two different manners, some times it happens in the course of the morcellation of the uterine body and as in the case of the bladder the blame is to be laid to specula badly placed or too brutally handled. We may then neglect this first mechanism since as I have told you it is much more advantageous not to introduce the anterior speculum deeply at this moment of the operation. Sometimes, and this is what usually happens, the injury is produced at the beginning of the operation when the two first clamps are placed on the uterine arteries. Some operators have therefore imagined that it would be safer for the ureter if the operation of Péan were performed without preliminary clamping of the uterine arteries, and consequently without amputation of the cervix. For my part I am of an absolutely contrary opinion.

The preliminary clamping of the uterine arteries gives great security, while the two clamps necessary for this are not at all in the way. As for the amputation of the cervix it gives us room and allows us to get a solid grip on the corpus uteri itself;

finally, and I insist on this point, the complete preliminary liberation of the cervix is the surest means of avoiding injury of the ureter. If the latter always preserved the distances in regard to the cervix which normal anatomy assigned for it, it would be, so to speak, impossible to wound it, whatever method were employed. But practically this distance must be forgotten and the operation must be performed as if the ureter lay directly against the uterus, which is moreover, very often the rule in cases of fibroma: besides, it must be remembered, that as long as the cervix is not liberated the ureter follows it in its movements of descent. Under these conditions is it not evident that to protect the ureter surely our safest precaution is to push it from the beginning away from our field of operation? In my opinion there is no shadow of a doubt on this question and consequently here is the very positive operative rule which I give: Commence always with the liberation of the cervix, and amputate it after clamping the uterines: place the clamps quite close to the uterine tissue, and especially do not apply these clamps until after having liberated the soft parts in front of the uterus widely and very carefully, especially at the sides. When this is done the operation can be continued in all security, the ureters, pressed to a distance, have no longer any uterine connection, and it is afterwards impossible to wound them.

I now come to the *wounds of the*

intestines and to *hæmorrhages*.

When there is no pelvic peritonitis in the cul-de-sac of Douglas it seems to me to be impossible to wound the *rectum*. Under the contrary conditions more prudence is required. Once for example in a very severe case of pelvic peritonitis. I happened to pierce the rectum at the very beginning, in incising the posterior cul-de-sac, but this is the only accident of that kind which has happened to me. Usually, and always in cases of pelvis peritonitis, it is in the last part of the posterior separation that the intestine is reached, sometimes by the fingers, sometimes with the blade of a speculum. Moreover, in such circumstances, the rectal walls are often very much thinned, even if they are not already perforated by the pus. The rules to be followed in order not to perforate the rectum, or in fact not to increase a pre-existent solution of continuity, are shortly therefore as follows: Dissect with the finger very prudently, and use the specula as little as possible. Nothing is more simple. When the cervix is amputated place a strong double teneculum on the posterior uterine wall to draw it down; this serves henceforth to depress the fourchette, without its being necessary to use a speculum for this purpose. In this manner I can assure you that injury of the rectum becomes more and more rare, and you know of how little gravity it is. For my part, I have observed a certain number of cases of this accident, and all, without exception, have got well

spontaneously without the least secondary intervention.

In connection with the injuries of the *rectum*, I ought to speak to you of *intestinal wounds*. In this respect adhesive enterocele is sometimes a danger and consequently we ought to be very careful in our manœuvres of dissection posteriorly. But the real danger does not occur until later, when after the removal of the uterus we proceed to ablation of the adnexa. But here I need only recall to you one of the most positive rules of the operation of Péan; to leave nothing unprovided for; to do only that which can be seen; and only to trust to sensations of the touch when they are very distinct. During this part of the operation, it doubtless happens that certain enucleations are performed trusting only to the distinctness of the planes of cleavage which the index finger meets; the manœuvre is singularly similar to the liberation of the adnexa by the fingers in a typical operation of Lawson Tait, that is to say in a laparotomy with a short incision, and in both cases the operator acts truly in perfect security. But whenever difficulties, even slight ones are encountered, nothing more must be done except under control of the eyes.

If it is impossible to carry out this programme, it is indispensable to stop and to be content with an incomplete operation, under penalty of risking accidents. I have had such an experience myself in four cases of severe suppuration. Three times I have torn the intestines, and although

these healed spontaneously afterwards the accident was none the less much to be regretted. Once, being rash enough to liberate blindly adnexa which were too adherent, I resected several centimetres of the small intestine, but I wish to emphasize very clearly that I was the only one culpable here, and that the method should not be blamed for the disaster.

Moreover, believe me that the cases in which the steps of the operation cannot be seen, the cases in which one has to be satisfied with an incomplete operation, are the exceptions, and for my part I no longer keep count of the cases in which, under the eye of my assistants, I have liberated adhesions of the intestines, epiploa, or appendix, and have succeeded in removing the most adherent adnexa. Moreover, I have arrived at the conviction that whatever can be enucleated through the abdominal wall can also be removed through the vagina, and whatever it is impossible to enucleate through the vagina cannot be removed by the abdominal method, except at the price of procedures incomparably more grave and more laborious. I add that, from the point of view of prognosis as to the future condition of the severest cases of suppurative pelvic peritonitis, incomplete ablations by the vaginal method give extremely satisfactory results in the majority of cases. What proves this better than any other consideration is that from the beginning the operation of Péan, as applied to these grave

cases, has gained the approval of all, or nearly all operators. To conclude, as to the precautions to be taken in regard to the intestines, I recall to you the attention which should be given to adjusting the strips of gauze which constitute the dressing, and I finish with some considerations on hæmorrhages.

The *hæmorrhages* of hysterectomy may be observed late. I have seen some cases, although they were not severe ones, at the eighth, tenth or twelfth day, and this is why I can hardly comprehend how any one can permit the patients to get up, or even to move about much in their beds, before the fifteenth day. The hæmorrhages which may be brought on when the clamps are taken off, that is to say at the end of forty-eight hours, are more disquieting; they are happily very rare. As for operative hæmorrhages, properly so called, the only ones which concern us today, I know that there have been terrible ones, but for my part I have never had to deplore this accident. And I affirm that with a suitable technique in operating they can always be avoided. The two first clamps paralyze the uterine arteries and as soon as they are in position, the vaginal incisions, which sometimes give much blood at the beginning of the operation, cease absolutely to bleed. Thus it is perfectly useless to make any delay for hæmostasis before the application of the two clamps in question. When these are once in position, one does not have to encounter hæmorrhage before the end of the operation,

and, under the influence of the traction which the operator ought to keep up all the time, the uterus stops its own bleeding, acting like a plug on the walls of the canal which it traverses. This peculiarity is very striking for those who see the operation for the first time.

On the other hand when the end of the morcellation approaches it is necessary to be very attentive. Usually, the uterine body being tilted forward, the clamps are placed from above downward on the broad ligaments; but here the direction of the clamps or their number is of little importance. What is indispensable is to clamp well everything which bleeds, using the long specula of Péan in order to see well, and drawing down the bleeding surface by appropriate traction. The quality of the instruments is here a matter of the first importance, and I know nothing better than the short-jawed clamps, of Péan, which moreover have been adopted by most operators. I prefer them because they never break, because they never slip and because taking them off is infinitely less painful than is the case with clamps with long jaws. Finally to be very sure of one's hæmostasis it is well to be particularly watchful during the latter part of the operation. I mean that the strips of gauze ought not to be inserted until after a careful and prolonged inspection of the

field of operation. This inspection will cover not only the dangerous regions, that is to say those at the sides, but also the vaginal incisions, which rarely but sometimes require special hæmostasis. In brief one should not declare himself satisfied until he has decided by evidence that there no longer exists anywhere the slightest exudation of blood.

Such are the generalities which I have wished to submit to you, and, incomplete as they may be, I hope that in adding them to the remembrance of some of the difficult cases which you have done me the honor to intrust to me, and upon which you have seen me operate, you will comprehend easily the reasons of my convictions on the value of the operation of Péan and on the security of its technique. I hope I may have convinced you also of this: whatever has been said about the encumbrance of the clamps, about the impossibility of seeing, about the frequency of operative complications is not exact. Without doubt hysterectomy, just like laparotomy has its obstacles, its dangers, its imperfections, its difficulties or even its impossibilities, but believe me it remains nevertheless a marvelous operation, which must come into general use as well for fibromas which do not pass the umbilicus, as for the bilateral ablation of the adnexa when this is very clearly indicated.

Modern Views on Matrimonial Sterility.*

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The importance of matrimonial fertility to individual and national welfare—even if there were no other ground—demands the occasional revival of this subject. The recent advances in pathology have nowhere occasioned greater upheaval and more radical change in opinion than in the views of matrimonial sterility. The writer purposes to take a ramble over the field, past and present, to review interesting points here and there, rather than attempt a methodical and exhaustive discourse, for which neither time nor occasion are favorable.

The chapters on sexual life in works on demography are amongst the most interesting and instructive in the history of the human race. Their perusal is essential to the full

understanding of the bearing that sterility has upon individuals, family and national economy. Those interested will find a most thorough and comprehensive presentation of the subject given in a work by Dr. H. Ploss, entitled “*Das Weib in der Natur und Voelkerkunde.*” (Woman in Natural History and Ethnography) which has recently appeared in English translation.

There is a great consensus of opinion on sterility as held at different times by all races. Quite commonly the female is considered culpable, and only rarely and in obvious incompetency alone is the male regarded at fault. The sterile woman is a despised and unfortunate creature. She is submitted to all sorts of indignities. With some races the barren female may be returned to her parents and the pur-

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chase price remanded. It may be that she is allowed to supply a sister to her husband for procuring offspring. Religious superstition has regarded barrenness in wedlock as a punishment visited upon the female by an irate deity, or has even declared the unfortunate woman possessed of the devil, which entailed all sorts of treatment and punishment.

In more enlightened times and races, even up to this date, the woman in barren wedlock, sensibly bears the brunt of the grievous restriction nature has imposed. Not infrequently domestic infelicity, as a direct or indirect consequence, follows in the train.

Sterility of the human race, compared with other animals, is of the greatest frequency. This is largely because in woman the apparatus is complicated, "if not inadequate for the purpose," says Henle. Upon the happy fimbrial seizure of the ovary during ovulation depends the successful carriage of the ovum toward where it may meet with the fecundating spermatozoid and find a suitable brooding place. The fimbrial seizure of the ovary is easily disturbed owing to disease, or simple displacement when the ovum is lost into the peritoneal cavity. Thomas in an article on this subject has recently emphasized the importance of a perfect fimbrial function, and expressed the conviction that the device is easily disturbed by displacement of the parts, or even slight inflammatory disease. This opinion must

be regarded as irrefutable by every thoughtful observer.

Copulation in the lower animals is restricted to the most opportune times, namely, at rut, when ovulation and menstruation coincide, and the alkalinity of the vagina makes conception almost an invariable result. Then the simple anatomy favors conception. The ovary is entirely surrounded by the abdominal end of the tube. Copulation in the human race is restricted to the intermenstrual period. This may have, it may be taken, in time so perverted the prime order, that, as a consequence, the coincidence of ovulation and menstruation is not any more the invariable rule. Lately this matter has again been subjected to scientific revision. Leopold and Mironoff (1894) studied the appearance of 42 pairs of ovaries, taken from women on whom the operation of their removal had been performed for various other diseases. Only healthy ovaries were included in the examination, and only those of women who were able to make definite statements about the exact time and duration of their last period. The ovaries were examined micro- and macroscopically. It was found that in the forty-two cases ovulation and menstruation coincided thirty times and that menstruation was unattended by ovulation twelve times. In the latter instances the ovaries contained no broken follicles, though follicles ripe for bursting were found. Upon reflection it would seem, that had the catamenial congestion in the

latter cases been reinforced by sexual orgasm, that the concomitant increase of intra-abdominal pressure (such as occurs during cohabitation which, in lower animals, takes place during rut.) the follicles in these ovaries too would have burst. It may be that the psychical disturbance preceeding the operation may have suppressed ovulation and thus the relative frequency of simultaneous ovulation and menstruation in this group of cases was lessened. Notwithstanding facts and arguments to the contrary, adduced to show the disassociations of these functions, the prevalence of opinion still holds to a temporal and causal connection between ovulation and the catamenial function.

Henson's observations, based on 248 cases, show that conception occurs in greatest frequency immediately following menstruation: that conception during the flow is not likely to occur toward its end: and that conception before a flow is a rare event. Many clinical observations and theoretical considerations favor the view that the function of ovulation preceeds the primary occurrence of menstruation some time, and may continue for some years after menstruation has ceased. Cases have been reported where conception has occurred before menstruation ever appeared, and also after menstruation had ceased for some time. According to Cook (1894) the girls of the Esquimaux marry and conceive with fourteen years and younger, whereas their menstruation first appears at the age of nineteen or twenty years.

Bossi (1891), on basis of twenty-seven cases, in which the date of conception could be definitely fixed, concludes that the most favorable time for conception are the days immediately following the menstruation. A premenstrual coitus may impregnate. Alive spermatozoids have been found within the vaginal vault seventeen days after coitus. Kroenig (1893) reported a conception, which occurred on the fourth day after parturition, showing that ovulation can occur at the end of a normal gestation.

It has been suggested that a certain mutual adaptation of the pair seems necessary before conception occurs. This inference is made upon the observation that commonly conception occurs for the first time only after months of cohabitation. It appeals to reason that the congestion incident to sexual hyperactivity, ordinary upon the early months of married life may disturb function and interfere with the more frequent occurrence of early conception. It is possible that conception occurs early often, but that gestation is interrupted by subsequent great sexual activity.

Very early and very late marriages are prone to be sterile. Woman's best years are between the ages of twenty and twenty-five years. Pfannkuch proves statistically that in marriages entered into before the twentieth year, fecundation is retarded, comparatively, six months. Fright, fear and other preoccupied conditions of the psyche, are impediments to

conception. They probably are allied in their local effect to frigidity, dyspareunia, adiposity, general debility, alcoholism, and similar conditions of known untoward influence. These influences probably act by inducing defective local circulation and consequently modifying ovulation and menstruation. Tuberculosis, as a condition entailing sterility, since J. Whitridge Williams (1895) has called our attention to the frequency of primary tuberculosis of the tubes, figures much more frequently in our present estimate of the causes of sterility.

Syphilis devitalizes the spermatozooids, unfits the uterus for gestation, and it may attack foetal life directly. Diseases of childhood, especially the exanthemata, are said to give rise to destructive changes of the sexual organs, entailing sterility ultimately. Evidence to this point naturally is meagre, owing to the rare opportunity given for making autopsy upon recent cases. However, the few cases found, and the respective clinical evidence, are quite conclusive. It is likely the relative frequency of such cases has been overrated. Infectious and debilitating diseases during the period of puberty of the female interfere often for months with menstruation, and undoubtedly exert a retarding effect on the growth and maturation of the genital organs. The ordinary expectation is that nature, without special care, can and does make up again. This view is manifestly faulty and disastrous as clinical observations will reveal. Special hygienic measures and freedom from

burdening tasks and kindred measures should early be invoked to make amends. Gottschalk has called attention to this class of cases and describes instances of uterine atrophy in sterile young women, four of whom had acute typhoid fever, at the time of the first menstruation and in other cases scarlatinal oöphoritis had preceded. Gottschalk attaches great importance to the early and full treatment of amenorrhœa.

Jolts sustained in early life may give rise to displacements and subsequent conditions which materially interfere later with the correct development and function of the genital organs. At the time of the injury, these organs being immature and inactive, the dislocation may cause no immediate inconvenience. As a consequence little natural or artificial effort toward correcting such displacement is made, and it persists and becomes confirmed. This class of cases, in the writer's opinion, is large. It figures more frequently in causing sterility than is accepted. Of all kinds of displacements, this kind is the most disastrous to the health and fertility of the individual, and the treatment encounters great difficulties. It is prognostically and therapeutically interesting to discriminate between this class of displacements, and those occurring after maturity. The writer met with thirteen outspoken cases of lateral displacement belonging to this category, within the last few years. Seven of them in married women who had been sterile for a period varying from one and

a half to seven years. All cases have the initial feature of having sustained a severe fall in early life. This was attended by local pain of short duration, commonly not lasting longer than a week or two. Menstruation appeared variously. In some cases it was retarded, and attended with much local and general disturbances. Growing dysmenorrhœa was a constant feature. Constipation was an early symptom of all cases. Owing to the prolapse of the ovary on the side of the lateral displacement, this organ is generally more or less involved. As a rule, it was found enlarged, painful to the touch, and, like the womb, fixed and adherent in its faulty position. Defecation, especially in those cases, where the displacement is toward the left, was attended with much pain and nervous symptoms. One patient had severe fainting spells at different times while in the act of defecating. Neurasthenia was a more or less severe feature in these cases. At times the incarcerated ovary would swell to great size which was seemingly in etiological relation to the irritation of excessive general exercise, costive movements, or sexual intercourse, which had preceded. This swelling commonly would recede after a short period of rest. The treatment consisted principally in massage, tending to free the organs of their adhesions and gain for them, natural position and mobility. Commonly the non-inflammatory origin and nature of these cases admit early of the forcible release of these adhesions. Subsequent stretch-

ing and kneading, and careful watch of these cases is further required to maintain success. Obviously skill and careful judgment are called for to avoid unwise and disastrous effort. All untoward influences must be eliminated. Attention to hygiene, gymnastics, hot douching, wet compresses over the pelvis, purgatives in the early stages, among other things, were applied, and indeed the cases received the most thorough and discerning attention and treatment. The results in these cases have been very gratifying. All patients improved in their general health. The catamenial disturbances, in all cases, were more or less entirely and permanently cured. One case, living at a distance, could not be treated regularly, and a vaginal fixation was found necessary to insure against relapse. Four of the seven married women have since borne, one of them twins. Two seem rather hopeless for offspring, though for them and the seventh case, ultimate time has not yet passed. One of the single women has married since the treatment. Up to the time of her treatment, at the age of twenty, she was an anemic, nervous and ailing creature. She had exhausted the list of cathartics in remedying the attending constipation. The genitalia were undeveloped, and the pubes had hardly any hair. Within one year she developed visibly into womanhood. Her marriage followed shortly afterward and now she has a boy baby. Gestation had not the full ordinary effect in giving maternally

proportions to her and lactation could be continued a few weeks only. Altogether, however, the case is probably the most interesting in the series, as demonstrating first, the dire results possible from this form of displacement, and secondly, the efficacy of the therapeutic recourse.

Until recent times comparatively little was known of the pathological conditions interfering with fertility. The last quarter of a century has matured our understanding considerably. Excluding the comparatively few cases of congenital sexual malformations, which absolutely preclude fecundation, sterility must now be regarded as essentially an acquired condition and in measure remediable. This view denotes a complete reversion of the views which until recently were held.

Noeggerath was the first to point out the destructive role that gonorrhœal disease plays in the production of sterility. It will be remembered that in 1872, Noeggerath published his opinion that gonorrhœa in the male was practically incurable; that it continued in a latent form; that the wives of husbands, who have once had gonorrhœa, were certain to become infected, and that primary or secondary sterility in the female was sure to follow. In consideration of the wide spread prevalence of gonorrhœa these declarations received much attention, and at the time of their announcement were much opposed. They have served the useful purpose of having given the most powerful incentive to the study of gonorrhœal

disease, and the causes of matrimonial sterility. At this date it must be said that advanced science virtually sustains Noeggerath's opinion. Gonorrhœa is proven to be the most frequent and destructive inflammatory disease affecting both male and female fertility. Owing, firstly, to the intricate anatomical structure and physiological function of the generative organs, in man and in woman, and secondly, owing to the character of the histological changes produced by the gonococcus, when once the microbe has infected the genitals, it has found such secure entrenchment, as to be almost practically unconquerable. Variations in virulence of the gonococcus, different susceptibility of different individuals to the gonococcus, and differences in extent of the invasion, as also the relative absence or presence of complications mark greatly different courses. No doubt nowadays many cases of gonorrhœa can be aborted and other cases can be cured. Yet Noeggerath's opinion is true to the extent that it emphasizes the destructive tendency of this disease, and that gonorrhœa is the most frequent cause of male and female sterility. For a while pathological research seemed to establish that the gonococcus per se was little destructive to tissue, but that it prepared the soil for more destructive pathogenic invasion, following in its wake. It was long held that the gonococcus gave rise only to adhesive inflammation, and that it could not ulcerate tissue, nor penetrate into

tissue. Where such changes attended a gonorrhœal inflammation, they were thought to be owing to some microbe present: a so-called mixed infection was accepted. It is now ascertained that the gonococcus, singly, may give rise to all sorts of inflammatory changes: that it is pus-producing: that it gives rise to connective tissue porliferation of most destructive kind: that it may cause both adhesive and suppurative peritonitis. The gonococcus may penetrate the full thickness of the uterine wall, giving rise to the incurable form of metritis, which is the crux of the gynæcologist, and which, until lately, was unexplained and theoretically ascribed to other infectious agents. It is the most frequent cause of child bed fever, though commonly not the most fatal form of this affection. The insults to vagina and uterus incident to child bearing, afford entrance points to the deeper structures. A chronic or subacute vaginal or cervical gonorrhœal inflammation may, and indeed does often exist without being suspected. Under the untoward conditions and influences of the puerperal state, the pathogenic gonococcus is now transmitted to the broad ligament and peritoneum causing quite often a veritable conflagration. Chronic pelvic disease, often calling for surgical measures for its relief, and sterility follow. But the noxiousness of the gonococcus to fertility is not confined to the female. It has been proven that the gonorrhœal virus is devitalizing to spermatozooids that come in contact with it.

They lose their motion and soon die.

Researches into the causes of the latent form of gonorrhœa in man have disclosed that in cases apparently cured, living gonococci still reside within the seminal vesicles, epididymis, and other deeper structures: this may be at the time unattended by urethral discharge. The seminal fluids of such individuals either contain no spermatozooids, or they are of impaired vitality and may even be defunct.

Thus, man is frequently the cause of sterility. Graefe, of Halle, a. s. (1895) accepts that in 50 per cent. of cases matrimonial sterility is owing to azoospermia. L. Seligmann, (München, 1893), computes that the barren marriages under his observation, are owing to the male in 75 per cent. of the cases. B. Vedeler, (Christiana, 1893), reports the result of his study of 310 women married one year or longer without conceiving. The husband was examined in 50 cases. He concludes that in 70 per cent. of the cases the husband is the cause of the sterility, owing directly to azoospermia, impotence, etc., or indirectly to his infection of the wife with gonorrhœa. In women, *per se*, sterility is present in 30 per cent. of the cases, mainly owing to neoplasm or atrophy of the uterus.

In determining the capability of the male it is no longer sufficient to be assured of his conjugal potency. It becomes necessary to examine his discharges for living spermatozoa. The destructiveness and the tendency of the gonorrhœal inflammation urge

to insist that the treatment of gonorrhœa, in its early stages be vigorously undertaken. In very recent times a few European States, in true recognition of the importance of the matter, have provided for the public treatment gratis of all individuals afflicted with gonorrhœa. This is certainly a commendable policy for all nations and communities to adopt.

Though treatment is not specially within the scope of this paper, two remedies deserve brief mention here. The one remedy is Fuller's method of stripping the seminal vesicles. The seminal vesicles have been shown to be the permanent seat of the gonococci in the cases that presented the heretofore incurable type of this disease. From here the urethra is repeatedly invaded, here the spermatozoa are devitalized: and from here the infectious material is transported to the sexual mate.

The second remedy deserving special mention is ichthyol. It is as much a specific as nitrate of silver, and while the latter remedy is applicable only to surface lesions, the ichthyol by virtue of its penetrating effect applies also to the more deep seated and chronic forms of the disease. It is the remedy par excellence in chronic pelvic inflammations of this kind. Applied in vaginal tampon and by inunction over the inguinal region, its anodyne, antiseptic, astringent and absorbefacient effect and withal its penetrating property, make it a most desirable remedy. Of all remedies known to the author it is the most potent and frequently successful. In the hands of the author this remedy used in conjunction with other conservative means, has saved many a woman a mutilating operation, a result, which viewed by our former resources, it seemed futile to even hope for.

Studies In The Peritoneum.

Development.

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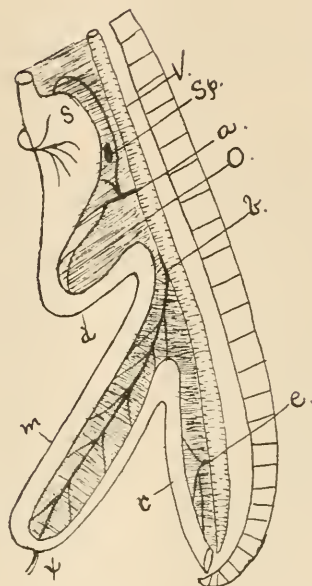
The following very rare specimen of a human foetus was presented to me by Dr. Bertha Van Hooson of Chicago. It is no doubt between five and six weeks of age. It is so rare to secure a foetus so early in development that I have carefully examined it in detail. In studying the peritoneum one must necessarily study the developing viscera which it covers. For the peritoneum is dependent on the viscera for its existence. Both peritoneum and viscera go hand in hand in development and the one cannot be well understood without the other. The peritoneal cavity depends for its origin and persistence on: (a) fluid pressure in interstitial lymph spaces producing coalescence; (b) the independent action of adjacent body walls. The advance and progress of viscera means their continuous covering by serous membrane. It is well known by those who study the development of the abdominal viscera that the great bowel loop supplied by the superior mesenteric artery makes a rotation from left to right. In this foetus the loop has not rotated but it extends

from the origin of the superior mesenteric artery to the umbilicus and it pushes the top end of the loop to some distance through the navel aperture, as this loop will be later developed outside of the abdominal walls before it finally returns within the abdominal cavity to continue rotating. The two limbs composing the loop lie in contact and parallel to each other. The abdominal plates were not closed and only a thin, transparent membrane closed the abdominal and aided in forming the umbilical sheath.

It is very clear that there are three distinct segments of the digestive tract in this foetus supplied by three distinct arteries. The first is the stomach supplied by the gastric artery. The second is the small intestines, the ascending and the right half of the transverse colons supplied by the superior mesenteric artery. The third is the left half of the transverse and descending colons supplied by the inferior mesenteric artery.

The accompanying cut represents as near as I can draw the figure, the digestive tract in this foetus. S.

FIG. I.



A SCHEMATIC DRAWING OF A VERY YOUNG FÆTUS.

- v.* Aorta.
- Sp.* Spleen.
- a.* Coeliac axis.
- o.* Mesoduodenum.
- b.* Superior mesenteric artery.
- c.* Inferior mesenteric artery.
- x.* Meckel's diverticulum (omphalo-mesenteric duct)
- s.* Stomach.
- d.* Duodenum.
- m.* Navel loop.
- e.* Descending colon.

stomach; V. aorta; sp. spleen; a. gastric; b. superior mesenteric; c. inferior mesenteric arteries; d. duodenum; in great intestinal loop (not rotated). R. rectum; o. mesentery; x. vitelline remains. In this foetus the great intestinal loop, m. passes out of the navel aperture to a slight extent. The only part of the figure that is diagrammatic is the duodenum, as I cannot show its beginning curves.

The foetus is 3-4 of an inch long, and about five weeks old. The fingers could easily be counted. The toes were only just visible and much less advanced than the fingers. Both arms and legs were mere stubs in appearance. The embryo hung on the twisted umbilical cord which was slightly over 1-2 an inch long. The eye and ear were just visible to the naked eye. The three brain vesicles were present. The head was large in diameter 1-4 inch antero-posteriorly and 3-4 of an inch from point of ear to top of skull. The eye simply showed discoloration from pigimentary deposits, and with a powerful lens no distinction into cornea and sclerotic coat; yet a differentiation is distinct, recognized by a loose line or fold between the two. The mouth is large, extending almost from ear to ear. On the mouth being opened there appears a tongue in position and shape. The chin is represented simply by the inferior maxillary bone, very round in shape and the mouth rests almost on the chest. The two hands rest on the enormously large liver with their palmar

surface. In fact the two hands just cover the big heart which lies exactly above the liver. The nose is represented simply by two round depressions. The abdominal visceral plates are closed like a sheath around the umbilical cord. The covering is so thin that the liver is plainly visible through the covering. The whole arm is about 1-6 of an inch, while the whole leg is about 1-8 of an inch long. The spinal column ends between the stubby legs as a round, partly transparent, vesicle. The genitals are represented by one large eminence and two small lateral ones. The large one appears to the naked eye to be the size of a pin-point. But under a powerful lens the eminence assumes the form of a later well-recognized genital eminence. The lateral eminences are the fold on each side of the raphé. The unclosed slit passing backwards from the genital eminence between the microscopic lateral eminences or ridges represents the cloacal fissures. No possible sign yet exists in a 3-4 inch embryo (measured from skull to end of spine or to end of feet) to suggest its sex. However, the long open raphe might suggest a female. A half hour after being removed from pure alcohol the whole body is shrunken, perhaps 1-6 of its original size. This shrinkage makes the liver appear proportionately larger because the soft succulent visceral plates retract much more than the liver shrinks. The liver is symmetrical and fills the abdomen from diaphragm (or heart) to the end of the embryo.

The liver is the embryonic organ as regards size and continues to keep up the large belly of children for the first year of extra-uterine life. We will now open the abdominal cavity to study the peritoneum, though like John Miller, of over three score years ago, I am loath to destroy such a perfect specimen. The remains of the vitelline duct lie along the umbilical cord. It became broken during the expulsion from the uterus. When the thin layer of membrane was peeled off the liver and the umbilical vein was cut, the cord was turned down with that portion of the abdominal wall which contains the two hypogastric arteries and the urachus. The umbilicus is situated exactly at the angle of the two symmetrical liver lobes and it must be noted that the umbilicus is very low in situation in an early fœtus. The two hepatic lobes extend almost to the posterior end of the embryo, so that when the lower abdominal walls are turned down only a slight amount of white intestines appear projecting low down out of this liver cleft. The stomach is entirely out of view. In this fœtus the umbilical or navel loop of intestines is distinctly formed. It consists of a double portion of intestine applied parallel to each other and almost in contact for the whole loop. It is situated in the middle of the abdomen and passes out through the liver cleft to the umbilicus. It has just been drawn entirely within the abdomen, but its distal loop angles are still in contact with the umbilicus and held there by the vitelline duct.

The mesentery of the loop is transparent. To one side of the top of this loop (the lower side) the vitelline duct enters; perhaps 1-10 of an inch from the tip. Again, the top of the loop has a slight bulge as if the cæcum would arise there.

The stomach had assumed the adult position, *i. e.*, it has turned over and also rotated on its axis. I wish to say that in this fœtus the stomach was compelled to assume its position from the liver: first, the atrophying liver dragged the pylorus to the right: second, the large left liver lobe forced the stomach to turn from right to left, *i. e.*, the left hypogastric nerve supplies the front and the right supplies the posterior surface. In my opinion the liver is the organ which induces the left side of the stomach to become anterior and the right side to become posterior. It is the liver, also that makes the stomach twist on its axis and drag the pylorus upward and backward. For several years this puzzled me from the fact that I examined embryos which were advanced. The pylorus has been dragged from the middle line and its mesentery is long. This has already given the digestive tract a spiral form. Where the duodenum ends the gut turns to the right and the whole umbilical loop is, in this fœtus, twisted so that the lower portion is distinctly on the right side. Now, should the small intestines elongate, they will necessarily develop toward the left where the only space is left for their growth. Now, if the lower loop (colon) grows it must nec-

essarily ascend and also pass in front of the small intestines. In this foetus the mesentery is limited in length from the beginning line of insertion at the point where the duodenum ends, so that the mesentery will attempt to grow in the direction of least resistance, *i. e.*, toward the lower end of the duodenum. Now as the atrophying liver drags the pylorus to the right side the mesentery from the lower end of the duodenum to the mid-point of the great loop is also put on a tension. This tension directs the mid-point of the loop (the cæcum) to ascend to the left side. As it grows, the mesentery keeping on a stretch it describes a circular line. This foetus shows very distinctly features which I have attempted to describe. It must not be forgotten that as the liver drags the duodenum to the right it makes a long loop. This loop must of course be longer than the attached median line of its mesentery. This makes a break at the lower end of the duodenum. As the mesentery is all medianly inserted, the dragging is produced on the mid-point of the loop, so that it not only forces the gut to the left side just below the duodenum, but it also directs the long part of the loop upward in growth. At this time the lower loop (colon) grows very slowly so that it will maintain its position, but the chief growth occurs in the upper limb of the umbilical loop (jejunum and ileum), so that on account of the liver it is forced to grow downward and to the left where space is still

left. Yet in doing this it forces the point of the great intestinal loop, where the cæcum arises, toward the left.

On the greater curvature of the stomach is plainly to be seen, with a strong lens, the fold of the great omentum and it is easy to follow it along as the duodenal mesentery which is very long in this 3-4 inch embryo (perhaps five weeks old). By pushing the stomach upward, the bag of peritoneum behind the stomach is visible plainly with a lens. The Wolffian body is very plain with its two ducts running into the pelvis. No ovary or testicle is visible, even with a strong lens. The Wolffian body makes large peritoneal folds.

The spleen simply shows a heap of reddish colored cells.

The pancreas is still between the blades of the great omentum.

The conclusions to be drawn from the above examinations are numerous, and, as I shall differ in my views from the chief standard text book, I shall formulate them in detail.

1. The gastro-hepatic omentum originally extends from the anterior surface of the stomach (small curvature) to the anterior abdominal wall. It should be called the anterior mesogaster or mesentery of the liver. The rapid or irregular growth of the liver as it budded out from the stomach quickly appropriated the peritoneum until the double blades of peritoneum, originally known as the anterior mesogaster, now extend from the transverse fissure of the liver to the small curvature of the

stomach. Its name is accordingly called the gastro-hepatic omentum. The liver grows rapidly and rapidly changes its position. The liver in its development moved to the right and of course dragged the small curvature of the stomach with it to the right with the duodenum. This accounts for the stomach turning to the right and the right vagus on the posterior surface of the stomach while the left vagus supplies the anterior gastric surface. 2. Again, the liver shrinks rapidly and moves rapidly to the right at the point where the hepatic duct enters the duodenum, consequently that part of the duodenum receiving the hepatic duct must move to the right and backward. This accounts for the twisting of the stomach on its axis. 3. A third factor combines to push the stomach to the left. When the liver drags the stomach to the right by means of the gastro-hepatic omentum the liver lobes force the posterior surface of the stomach to the left. In doing this the posterior mesentery of the stomach (posterior mesogaster), which is attached to the greater curvature of the stomach and the middle line of the body, moved towards the left. This pushes the stomach toward the left in its greater curvature. In order for the greater curvature to grow it must move downward out of the way of the

large liver, and in so doing, it must elongate its mesogaster (posterior). In the above fœtus (3-4 inch) the greater curvature of the stomach has already elongated its posterior mesogaster until it is stretched from the insertion line (middle or dorsal) all the distance around the left side of the stomach to the great curvature where it can be seen terminating in a roll. This makes a considerable sized fold, known as the great omentum. Following this great fold with a lens one can trace it down until it becomes the duodenal mesentery. At this stage in the embryo the circumference or mouth of the depression in the mesogaster is generally closing in to a foramen known as Winslow's foramen which forms the mouth of the lesser omental sac. Here we have the serous cavity which no doubt is aided in its production by the coalescence of intercellular spaces, fluid pressure, and also by the independent action of the surrounding wall, the stomach, liver, and dorsal parietes. 4. Hence the liver is responsible for (a) the rotation of the stomach from left to right, (b) the dragging of the pylorus to the right side and backward, (c) the twisting of the stomach on its axis, (d) from pressure of the liver, the stomach is pushed downward and its mesogaster and esophagus elongated.

Implantation of the Ureter into the Bladder, per Abdominal Section, for the Cure of Uretero-Vaginal Fistula.*

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Among the causes leading to the production of uretero-vaginal fistula, the most frequent at the present time is probably the vaginal extirpation of the uterus. Formerly difficult parturition was the most prolific source in the etiology of this malady. Among other factors by which such fistulae have been produced may be mentioned the perforation of a pelvic abscess, as cited by Thomas Addis Emmet in his "Principles and Practice of Gynæcology," and in one instance, according to Weil,¹ from the wearing of a Mayer pessary which had been introduced by a midwife. Zweifel² thinks it possible that acute torsion at the distal end of the ureter may produce them. "When the uterus is delivered anteriorly through the opening of the plica vesico-uterina and the broad ligaments are tied off from above, we get very near the ureter, at the point where it traverses the broad ligament, with one of the ligatures. If this ligature embraces too much tissue it will draw the ureter downward, quasi including it,

but sufficiently far away from the uterus that it will not be directly cut when the organ is loosened from its attachments."

It is conceivable that as a consequence of the production of such sharp angle in the lower course of the ureter a necrosis in its wall can take place, with a perforation as the necessary result.

It is my belief that injuries of the ureters are of more frequent occurrence from the performance of vaginal hysterectomy than is known, many cases not being reported. Neither is it surprising that the ureter is occasionally injured during this operation. It is indeed liable to occur relatively oftener in the hands of experienced operators than in those of less experience, because the former are apt to undertake more difficult cases—especially when operating for cancer, if the broad ligaments are thickened and the operator works far away from the cervix while endeavoring to remove all particles of malignant infiltration.

If a ureter is injured during an operation it is not necessary that the damage done be manifested by urine

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dribbling during the first few days subsequent to the accident, because of the ligature or clamp compressing it, hence necrosis must first follow the traumatism.

Without the existence of a fistula the diagnosis becomes quite difficult if only one ureter has been occluded, the smaller quantity of urine evacuated from the bladder being no criterion. I have seen complete anuria for twelve hours in one instance, and partial anuria for from twenty-four to forty-eight hours on several occasions, following serious operations, the ischuria undoubtedly being due to the effects of the anæsthetic: perhaps also the loss of blood had some influence on its production. This symptom, however, taken in conjunction with colicky pains in one of the renal regions and sensitiveness to pressure there, associated perhaps with vomiting, should lead us to make a cystoscopic examination, by which it could be ascertained whether or not both ureters are patent.

If a fistula is present the diagnosis becomes much easier, because, in addition to the urine passed from the vagina, about an equal quantity is voided voluntarily per urethram. A very valuable aid to diagnosis is found in the milk test. Milk injected into the bladder will not make its appearance in the fistula, even if the distal end of the ureter be still pervious, owing to the adaptation of the anterior and posterior wall of the ureter, the same as under normal conditions; this prevents the urine from regurgitating. Cystoscopic examination will

also positively clear up such a case; if the ureteral catheters be introduced, even if the distal end be pervious, no urine will come through the catheter on the affected side, whilst on the opposite side it will issue drop by drop. Again, by placing the patient in the dorsal position and exposing the vaginal vault with proper specula, one can with a little patience find the fistulous opening, though it be only the size of a pin head or smaller: then with a proper probe, or, better, a ureteral catheter, it is usually possible to enter the ureter, and to see the urine coming out of this drop by drop makes the diagnosis a certainty. Although Axel Iversen³ warns against attempts to explore the ureter from the fistulous opening, on the ground of its liability to produce a ureteritis, I would not hesitate to do so, and can see no reason for such occurrence if proper aseptic precautions are taken. It should not be forgotten, however, that it is possible to have a false passage existing, so that one may think that the sound or catheter is in the ureter when such is not the case, as the following instance illustrates. I give the history in the patient's own words: Mrs. M., æt. 43 years. Ipara, had a small fibromyoma removed per vaginam by another colleague. "After the first twelve hours I suffered excruciatingly from a constant pain in right lumbar region extending down iliac region. After the removal of clamps at the end of forty-eight hours the pain became less, but did not entirely disappear. During this time the urine was scanty, with some

considerable cystitis, but on the third day urinated without assistance. On the sixth day, in straining to urinate, I felt something give way, and the water came with quite a gush from the vagina and has continued to come in large quantity ever since. March 1st, the last day of observation, in ten hours passed by fistula nineteen ounces, by bladder eight. The full amount voided by bladder for twenty-four hours averages, I think, about seventeen ounces; sometimes more, sometimes less.

A careful examination of the urine by myself showed the urine from the fistula diminished in solid constituents, compared to the urine from the other kidney; albumin, granular casts, renal epithelium, epithelium from the pelvis of the kidney, and pus; and the quantity voided was greatly increased.

The urine from the other kidney showed renal epithelium and a faint trace of albumin.

The patient at times passed less urine from the fistula, and on such occasions had more pain in the respective renal region, radiating down along the course of the ureter; after a short time a copious gush of urine would make its appearance with a subsequent relief of pain.

The fistulous opening was found in the extreme right angle of the cicatrix. On March 24th, the patient having entered my service in the Post-Graduate Hospital, a ureteral catheter was inserted, as was presumed, into the ureter: on opening the abdomen, however, an unexpected

condition was found. The catheter traversed retroperitoneally, then behind the distal end of the ureter up to the pelvic brim, where a piece of the ureter was missing. It was evident that the bladder end had become impervious and the renal end of the ureter was too far away from the bladder to risk implantation, even if I had loosened the viscus from the pubis, as my friend Dr. Kelly did in his case. Considering the great inconvenience and distress caused by the fistula, which prevented the patient from attending to her usual avocation; the danger of the already existing nephritis, which would certainly increase; and, last, the false passage or fistula existing from the upper end of the ureter to the vaginal opening, which was so exceedingly pathological, I dare say unique, as I have not been able to find the record of another instance of such long fistulous tract (in Krause's case there was a short fistula). I resolved to remove the kidney, especially so since we had reason to consider the development of a slow sepsis in addition to a pyelonephritis, if side pockets should form along the course of the false passage. I believe the attacks of partial suppression of urine from the affected kidney are readily accounted for by the existence of this fistula, which at times probably became partially occluded, hence the severe pains in the renal region, which were relieved on the free escape of urine.

As the condition of the kidney subsequently showed, it was independent

of the impossibility of the performance of uretero-cystotomy, a wise step to have removed it. Its pelvis was greatly distended with changed urine and the renal structure so much changed (interstitial suppurative nephritis) that restitution, even under the most favorable circumstances, would have been out of the question, according to Dr. C. Heitzmann's opinion. The injury was apparently produced by the application of the last clamp catching the ureter lengthwise very high up in the pelvis and remaining on it until its removal, which I believe was over two days, during which time necrosis had taken place with probable adhesive inflammation of the bladder end, and about the sixth day, according to the symptoms, the urine had created a false passage retroperitoneally from the upper end of the ureter to the vagina and there found exit.

The patient made a good recovery, the opposite kidney assuming the requisite functions as well as could have been expected. The more acute nephritis immediately following the operation gradually disappeared, so that an examination four weeks subsequently showed no albumin nor casts, but still some renal epithelia.

We have another important deduction to draw from this case, namely, that all uretero-vaginal fistulae should be operated upon as soon as possible after the diagnosis has been established, on account of the great liability of the respective kidney to become infected: and we may justly say that there sometimes seems to be a sym-

pathy in existence between the two renal organs, similar to that between the eyes, as was distinctly shown in the above case, in which, after the removal of the diseased organ, the remaining kidney was put in a better condition than prior to the nephrectomy. Too great stress cannot be laid upon the necessity for a careful comparative examination of the urine in all instances of uretero-vaginal fistula. Whenever the urine from the kidney, with such injury to its ureter, is greatly increased in quantity with a diminished quantum of solids, there is probably serious structural change present in the renal organ, corroborating Iversen's⁴ observation: but such symptoms should by no means induce us to always remove such kidney, as was advocated by this surgeon, because it may be possible to get the respective kidney in an approximately healthy state by means of local and general treatment, and later to keep it so if the fistula has been obliterated.

The prevention of such accidents should, of course, be our main object: but even if the ureter has been occluded in a ligature or clamp it may still be possible to prevent a fistula, if the ureter has not been cut and we are sufficiently alert for the showing of the symptoms indicating the accident.

If complete anuria is present we have reason to suspect that both ureters have been tied, especially when pain and sensitiveness to touch are present in the renal regions, with nausea and vomiting. Under such circumstances resort to the cystoscope

should be had without delay. If, under the guidance of the eye, the catheters are introduced into the ureteral orifices, and it is found that the urine-conveying tubes are occluded, the ligatures or clamps should at once be released, and, as in the instances of Zweifel⁵ and Gusserow reported by Hochstetter,⁶ patency may be re-established. If bleeding takes place from any of the vessels liberated it is not apt to be difficult to secure it directly with a Péan. Regarding the diagnosis of the occlusion of one ureter I have already spoken, and the treatment is of course similar; as previously noted, the ligature or clamps must be taken off from the side from which no urine escapes through the catheter introduced through the ureteral orifice by way of the bladder.

The diagnosis of a uretero-vaginal fistula having been established, the most important question comes up for consideration—namely, what means should we adopt to bring about a cure?

A spontaneous cure can only come about if the ureter has been injured in its long axis. Such cases are more apt to occur after parturition, and they have been observed by Zweifel, Schatz, and in the Charité of Berlin by Gusserow.

I beg to call your attention to the cure of the fistula by implantation of the ureter directly into the bladder per abdominal section. If during an abdominal hysterectomy it is necessary to resect the lower segment of the ureter for a short distance, as in

the cases cited by Penrose⁸; or during a hysterectomy by Kraske's method, as in Von Rosthorn's⁹ case; or if accidentally injured near the bladder during such operation, as in Krug's¹⁰ case, there should be no hesitation as to what is to be done: a ligature is to be put on the distal end of the ureter, and the proximal end should be implanted into the bladder at once.

When, however, such condition exists as we treat of, there may be other operative methods adopted to give relief, as will be briefly referred to later.

The history of the case which led me to adopt uretero-cystostomy is as follows:

Mrs. L. M., æt. 32, had had a vaginal hysterectomy performed by me on June 6th, 1895, for suppurative salpingitis, chronic pelveo-peritonitis, and chronic metritis. The operation was very difficult owing to the immobility of the uterus and intestinal adhesions to the pelvic organs. The right ovary could not be enucleated for the above reasons.

A few days subsequent to the operation the patient lost urine involuntarily per vaginam, and inasmuch as the bladder was intact at the close of the operation, as ascertained by the milk test, I suspected a uretero-vaginal fistula, which supposition proved correct when a careful examination was made at the time of recovery from operation. Without delay local treatment was then begun to relieve the inflammatory infiltration surrounding the fistula at the roof of the vagina and pelvic floor, so that a plas-

tic operation could be performed; but the result was negative, perhaps owing to the presence of the ovary and portion of adnexa on the right side. The patient complained so bitterly of the inconvenience caused by the existence of the fistula, which was in connection with the right ureter, and also of the persistence of considerable pain in the right ovarian region, that I decided to make the attempt to implant the ureter per abdomen.

On October 10th, after thorough preparation of the unusually corpulent patient, a No. 4 gum elastic catheter was passed into the ureter from the vaginal opening to act as guide for the abdominal work.

The abdomen was then opened and the patient placed in pelvic elevation, when the ovary, which had undergone cystic degeneration to about the size of a hen's egg and was tightly adherent to the pelvic walls, was enucleated. It hugged the ureter so intimately that, had the catheter not been placed in this for the purpose of guidance, I doubt its removal without additional injury to the ureter.

In the lower segment the ureter was not mobile, owing to the existence of a periureteritis, yet, thanks to the ureteral catheter, it was possible to resect it without injury; this was done for a distance of about seven centimetres, leaving the peritoneal covering, which was already attached to it by the inflammatory process, remaining on it: besides, this served a good purpose by maintaining vitality. At the vaginal junction the ureter was severed, but the catheter

was allowed to remain in it. Now Dr. H. J. Garrigues, who was present and kindly assisted me, filled the bladder about two-thirds full of sterile water, so as to permit the selection of a proper place for implantation, which I desired to make as near as possible to the normal position; at this point the bladder was opened by an incision of about three-quarters of a centimetre, the water having been emptied again per catheter as soon as the knife touched the mucosa. After the bladder had been opened a long pair of uterine dressing forceps were passed through the artificial opening in the bladder per urethram, and the urethral catheter drawn through the viscus and out of the urethral opening sufficiently that it protruded about ten centimetres; next the ureter was invaginated through the opening in the bladder to the extent of about one centimetre. Now three fine silk sutures were placed at about equal distance, which passed through the entire thickness of the bladder excepting the mucosa, and quite superficially through the ureter. The abdomen was now closed in the usual way without drainage. A permanent catheter was finally put into the bladder alongside of the ureteral catheter, so as to keep the bladder empty, thereby not exerting any pressure on the newly made opening, so as to permit the ureter and bladder to heal rapidly; also to permit of the quantitative and qualitative examination of urine separately from each kidney during the first forty-eight hours. The ureteral catheter had

also an additional object —namely, to give resistance to traction on the newly implanted ureter in the event of intestinal peristalsis. I have found the partial distention of the bladder advantageous to select the desirable location for the implantation and to facilitate the making of the incision. Recovery was uneventful, if a couple of stitch hole abscesses be excluded.

The ureteral catheter especially is of the utmost importance, so much so that I believe it possible to properly free the ureter in every instance, even if it is surrounded by a perinureteritis. If its application had been thought of, for instance, in the case which Dr. Kelly had intended to operate upon at my invitation, mentioned by him in his paper on uretero-cystostomy, I believe that he would have finished the operation without trouble, because bleeding can always be stopped in some manner: as it was, I subsequently removed the kidney from that patient. Although the recovery was perfect after the nephrectomy, I cannot refrain from severely criticising my procedure with our present knowledge of the therapy. Nephrectomy should but rarely be resorted to, and then only when no other means will give relief or when it is ascertained that the respective kidney is diseased beyond the probability of repair.

Krause,¹¹ while doing a vaginal hysterectomy during the summer of 1894, purposely created a uretero-vaginal fistula, because a part of the ureter was embedded in infiltration. The fistula resisted attempts at closure per

vaginam: he, therefore, opened the abdomen and liberated the lower five centimetres of the ureter and implanted it into the bladder. In the anterior and into the posterior wall of the ureter, one and a half centimetres above the cut surface, a long silk suture was inserted: then a long pair of dressing forceps was passed into the bladder by way of the urethra, upon which the bladder was opened and the silk threads caught and brought out at the external urethral orifice. The ureter was then sewn to the bladder with four interrupted sutures and the abdomen closed. Recovery.

Kelly,¹² about the same time when Krause operated, did an interesting operation to obtain additional length of the bladder on a patient seven weeks subsequent to a vaginal hysterectomy. After opening the abdomen and liberating the ureter he found that the latter was not long enough to do a successful implantation. He therefore separated the bladder from the horizontal rami of the pubis, which then permitted the implantation without strain on the ureter. To avoid subsequent stricture of the ureteral opening he slit the under surface of the ureter about four millimetres, so as to enlarge the orifice, which had also been practised by Krause.

Of all uretero-cystostomies so far done, that by Witzel¹³ seems to be the most rational and is most ingenious: it is extra-peritoneal, and should be imitated when circumstances permit of its performance.

The patient, 20 years old, had had

the plastic operation according to Mackenrodt tried, and it failed, leaving the ureter jammed in scar tissue, so that, although a sound could be readily passed into it prior to the plastic operation, it was now impossible. On October 29th, 1895, a median abdominal section was made and the peritoneum opened by a small incision made at the branching of the iliac vessels, where, after a short search, the thickened ureter was found. Slight traction upon it at this point permitted its easy tracing in its course below this point. It was again exposed by a small incision at the broad ligament, ligated double, and cut between the two ligatures. The distal end, after sewing over the stump, was buried. The proximal end was by traction brought out at the upper incision, and then, with a pair of long forceps which was guided extraperitoneally to the right of the vesical region above the linea innominata, the ureter was drawn down again. The two small incisions of the peritoneum in the abdominal cavity and that in the parietal peritoneum were now closed so that the remaining part of the work was done extraperitoneally.

The bladder, which contained only a moderate quantity of boric acid solution, was with moderate traction brought above the middle of the iliac fossa, so that the end of the ureter could be easily placed for a distance of four centimetres at the upper convexity. With some strong catgut sutures the bladder was fastened in this position.

Opposite the obliquely-cut end of the ureter a small opening was made into the bladder over a catheter which had been introduced into it. A circular row of interrupted fine catgut sutures were used to unite the ureteral and vesical mucosæ; an additional row of fine catgut sutures fixed the wall of the ureter to the bladder. Now the oblique canal formation was made by taking a fold of the bladder parallel to the ureter, on either side of it: the tops of these folds were united in such manner with each other that an oblique canal of four centimetres in length was formed in which the ureter entered the bladder. A glass drain to the point of implantation was introduced through a separate opening in the abdominal wall, and the median abdominal incision closed in the customary manner. A permanent catheter was left in the bladder for four days. Recovery was uninterrupted.

The above cases are so far as I am able to learn, the only successful instances of uretero-cystostomy done per laparatomiam for the cure of the malady under consideration.

The following are the cases which have been done as primary operations and are included with the secondary operations because the technique, whether done as a primary or a secondary operation is nearly similar.

CASE BY PENROSE.¹⁴—The patient had a carcinomatous uterus removed per abdominal section in July, 1893, during which procedure it became necessary to resect the portion involved in the broad ligament. The distal

end of the ureter was ligated with silk, and the proximal portion implanted into the bladder by making an antero-posterior incision into the viscus about two centimetres long, arming a needle with fine silk, which was passed through the bladder-wall from without in, at a point about one-third inch from the edge of the incision on the right, and brought out through the incision. It was then passed through the right wall of the ureter close to the extremity, carried back through the incision in the bladder, and passed through the bladder-wall from within out, close to its point of entrance. A similar suture was passed on the left side of the incision in the bladder and through the left side of the wall of the divided ureter. Traction on these sutures dragged the ureter into the bladder, and when tied they held it in this position. The loose peritoneum, which formed a partial investment to the ureter, was drawn down and sutured to the peritoneum of the bladder by a continuous silk suture around the line of union of ureter with bladder. No drain was used after closure of the abdomen. Recovery.

CASE BY KRUG.¹⁵—During a complicated abdominal hysterectomy for fibroid tumor the ureter was accidentally severed. The distal end was therefore tied off, and an incision about one and one-half inches long was made in the bladder near the vertex. The suture, consisting of fine catgut, was passed into the bladder from without, about one-half an inch below the incision: then out through

the incision; then through the ureter from without within: again through the incision in the bladder, coming out at a point near the original insertion. A similar suture was passed on the opposite side of the ureter. The cut proximal end of the ureter was now split between the two sutures, and the two sutures loosely tied so as to suspend the ureter in the bladder. The incision in the bladder was closed by four tiers of continuous and interrupted sutures. The permanent catheter was removed on the fourth day.

It will be observed that Krug's and Penrose's methods were nearly similar, both being done on the principle suggested by Van Hook¹⁶ in his classical paper on experimental ureteral surgery.

J. Veit¹⁷ departs from the previously-described methods in making the implantation extraperitoneal, viz.: after extirpation of the diseased adnexa, during which he injured the ureter laterally, it was brought out of the abdominal incision. At the point where the ureter passed the abdominal wound, between the parietal peritoneum and the fascia, it was fixed with two sutures, avoiding its lumen. Then the skin incision was carried to the symphysis, and the bladder was opened extraperitoneally, with a longitudinal incision, on its anterior surface. The ureter was cut oblique, thereby enlarging its cut surface, and sewn into the bladder. The eventual recovery was satisfactory.

The disadvantages of an intraperitoneal implantation are the danger of

intestinal adhesions forming around the short piece of exposed ureter in the bladder, perhaps leading to intestinal obstruction, and, should there be functioning pelvic organs present, the ureter in the event of pregnancy may become so distorted as to impair the functions of the respective kidney very seriously. I believe, therefore, that Witzel's method is that to be preferred, if it is feasible of performance --i.e., if sufficient length of ureter be present.

Among the methods adapted for intraperitoneal implantation it seems to me that the one applied in my case deserves a trial, if a suitable case presents itself, owing to its simplicity, facility of execution, and the favorable result which must necessarily follow if the operation has been aseptically performed and no shock nor complication from another disease sets in to terminate life. The ureteral catheter should not be left longer than forty-eight hours, because by that time the adhesions between the bladder and the ureter are sufficiently firm, and to leave the catheter longer is liable to produce a ureteritis.

Although I consider that ureterocystostomy for the relief of a ureterovaginal fistula is an exceedingly desirable operation, and superior to some of the vaginal operations done to give the patient relief from the involuntary loss of urine, in fact should be chosen in preference to such operation as total kolpoklesisis, there are vaginal operations which should have the preference, if it is possible to do them, notably that advocated by

Dührssen¹⁸ by which the ureteral and vesical mucosa are directly united after splitting the lower end of the ureter, so that there seems to be no possibility of a stenosis taking place at any future time: besides, by Dührssen's technique torsion of the ureter is avoided. Such method is the only one which in my opinion fully deserves the name of kolpo-uretero-cystostomy. Schede¹⁹ operates in two sittings, first making a vesico-vaginal fistula, and carefully attaches the bladder mucosa to the vaginal mucous membrane to prevent stenosis. At the next sitting he completes the operation.

Mackenrodt,²⁰ Arie Geyl,²¹ Landau,²² and others have done and described very ingenious procedures, and I have found their descriptions highly interesting and instructive, but it is not within the scope of this article to deal with any but the abdominal operations: yet I cannot refrain from calling attention to such excellent articles and to the most valuable contribution to the surgery of the ureter by Christian Fenger in the Transactions of the American Surgical Association for 1894.

Our colleagues, Drs. Parvin and N. Bozeman, belong to the pioneers of vaginal surgery for the relief of this distressing condition, and the highest credit is therefore due them. What can be done by patience and perseverance in such cases is well demonstrated by the latter's son²³ in a very interesting case in which all the cicatricial tissue in the vaginal vault was softened by his method, after which kolpo-ure-

tero-cystostomy was done in two sittings. I object to total kolpokleisis absolutely. It should not be tolerated, because it is only a question of time when such patients will develop a pyelonephritis, because the residual urine frequently undergoes changes with the liability to the formation of calculi, aside from ethical reasons.

To sacrifice a kidney for the abolishment of the fistula should be a *dérivier ressort*. Even if a nephritis or a pyelitis exists other measures should be tried—for the former, diet and proper medication: for the latter, washing out the pelvis of the kidney as described by Kelley,²⁴ or nephrotomy. Of course, should there be so much ureter lacking that it is impossible to do an implantation, there is no help for the patient except a nephrectomy.

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REVIEW OF GYNÆCOLOGY.

American Gynecological Society.

From the papers and discussions of the Annual Meeting of the American Gynecological Society, May 26, 27, 28, 1896, we glean the following notes:—

VIRGINAL AND SENILE ENDOMETRITIS.

Dr. Paul F. Mundé said: "I do not believe the profession as a rule are aware of the frequency with which these catarrhal changes of the endometrium occur in the virgin, or of the symptoms which they produce, or of the importance of recognizing and correcting these symptoms. It is a universal practice, and one with which on the whole within proper limits I concur, that the sexual organs of a young girl should not be subjected to local interference on the part of the gynecologist and still there are limits to this rule.

The significance of this peculiar form of endometritis in the virgin and nulliparous woman depends mainly upon the symptoms which it produces—namely a more or less profuse muco-purulent discharge or menorrhagia. In the married nullipara of course, sterility would be an additional probable result.

It goes without saying that a correct diagnosis can only be obtained by a digital, and in this class of cases indispensable, specular examination, even at the risk of destroying the hymen. The appearance presented by such a cervix is almost identical with a puerperal laceration of the second or even third degree, with everted and eroded lips. The ten-

acula will bring together the normal edges of the cervical lips, precisely as can be done in a puerperal laceration. The medico-legal importance of properly estimating such cases must not be overlooked, and the appearance of the external organs, together with the probabilities of the case, should be taken into proper account.

In my opinion the treatment is simple enough, since it consists in excising the hypertrophic mucous membrane of the cervical cavity, curetting the whole endometrium with the blunt, and the cervical canal with the sharp, instrument, and, if the eversion is thought sufficient, of paring the lips and uniting them by silver sutures precisely as is done for puerperal laceration. Penrose recommends amputation of the whole cervix. I do not think from my experience with these cases that this is necessary, for a complete cure can be just as well achieved by excising the diseased tissues, and bringing together by sutures the sound ones, without in any way altering the normal appearance of the cervix uteri. After treatment by intra-uterine alteratives may be necessary to effect a permanent cure, as would be the case in ordinary endometritis.

I have for many years noticed that women who have passed the change of life, are subject to a certain extent, to a disagreeable muco-serous pun-

gent discharge, which in course of time brought about an erosion of the lips of the cervix of the vaginal vault and a chronic vulvo-vaginitis. Such patients have consulted me again and again and I have treated them on the general principles of chronic endometritis. There being no bloody discharge in many of these cases, no suspicion of malignancy occurred to them or to me, and indeed there was no cause for any such suspicion. My explanation of these cases was, that the pelvic organs having undergone a gradual atrophy after the menopause, the nutrition of the various tissues was insufficient and in consequence there was a breaking down of all the elements in the uterine mucosa and in the vagina and a serous discharge was the result.

I found that not only women who had passed the natural menopause but also those in whom that condition had been artificially brought on by the removal of the uterine appendages were subject to senile endometritis.

That the lips of the cervix, the vagina and the vulva should become eroded in time by the discharge is of course perfectly natural. I can say here frankly that I have succeeded in curing the large majority of these cases in old women by frequent applications to the endometrium and vagina—in fact to any eroded spot—of a solution of nitrate of silver from one half to one drachm to the ounce, usually from three to four weeks being required to effect a permanent improvement.

The treatment was then continued by the local application to the vagina of iodoform and tannin in powder, equal parts.

But these were the simple cases. These are not the cases which form the most serious and important instances of senile endometritis. These

simple muco-serous discharges are easily diagnosed and usually easily cured; but in a certain number of cases the discharge assumes an entirely different character. The women who have not seen a sign of menstrual blood for one or more years, and who think themselves safe from anything like pelvic disease, come to us because they have noticed for several months a bloody discharge from the vagina, not profuse in amount but sufficient to soil and stain the linen,—the so-called “spotting.” In some the discharge has not only been bloody but it has gradually become exceedingly offensive and has eroded the external genitals.

Now it is not necessary for me to say to an audience like this that symptoms like the above are strongly indicative of one particular form of disease,—namely, of malignant degeneration of the uterus; and it is therefore with that apprehension in our minds that we proceed to the examination of such patients. Fortunately, there are a few women with such symptoms who do not present the physical signs of the disease which they and we all dread so much. We find no evidence of malignant degeneration of the cervix: we find a small atrophic uterus or at all events a uterus not enlarged; we find an eroded cervix, a raw vagina and vulva, and passing the sound up into the uterus a bloody sometimes brown or blackish discharge takes place. Now of course the positive diagnosis of these cases cannot be made by a mere digital or specular examination: the microscope is usually indispensable to us for a confirmation or refutation of our clinical opinion. As a rule, I, for my part, have seldom needed the microscope to settle my diagnosis of the malign-

nancy or non-malignancy of uterine growths or discharges. But in these cases of doubtful senile endometritis when the discharge is so foul as to lead one strongly to suspect the malignancy of the disease the microscope is our sheet-anchor. The diagnostic curetting and examination of the scrapings are there for the first indication.

I have been surprised to find in some cases how very suspicious the odor and appearance of such discharges were and still how entirely benign the condition was. I confess that I do not feel able to account for the occurrence of this affection, but I do know that it occurs more frequently than we think and its significance should be recognized and properly appreciated.

The treatment is quite as simple as that of endometritis under other circumstances—namely the curette; caustics, chiefly nitric acid, followed by solution of nitrate of silver and drainage; and finally when the erosion has healed, a contraction of the secreting surfaces by the frequent application of iodoform and tannin powder. Under no circumstances does it seem to me that the radical measure of a vaginal hysterectomy is indicated for this disease; at least no such case has yet come under my observation."

The discussion which followed was shared by Drs. Penrose, Smith, Mann, Palmer, Kelly, Lusk and Johnson. A case of congenital split and erosion of the cervix was reported. The fact that dysmenorrhœa and menorrhagia are largely due to inflammation of the lining membrane of the uterus, blocking up the exit of the uterus was noted and this inflammation thought to be of the same catarrhal type frequently manifest among young girls who expose themselves to causes which produce catarrh

in other organs. The importance of general treatment, especially to meet the condition of "lithemia," was emphasized.—*American Journal of Obstetrics*, July, 1896.

LIABILITY TO PROSECUTION FOR DAMAGES IN ABDOMINAL SURGERY.

Dr. Cyrus A Kirkley's paper on this subject is of no little value to the general practitioner. Three cases are quoted and discussed. He says: While the moral responsibility is the same in every surgical case, the legal responsibility varies according to the gravity of individual cases and results of treatment: therefore, when the abdominal surgeon is made defendant in a suit, the claim for damages is not likely to be insignificant.

In contemplation of an operation, an understanding can usually be had with the patient and friends: exceptionally, however, contingencies may arise making it impracticable, even impossible, to do so.

The question arises whether under such circumstances an urgent operation should be undertaken with all the attendant risks.

The average jurymen places the same estimate upon expert as upon any other testimony. Courts too are inclined to underestimate the value of expert testimony. There is much need of reform in this direction. An expert witness should be considered as such only when he is known to possess special qualifications, and to have had sufficient experience to entitle his opinion to weight.

In any case the sympathies of a jury govern them largely in determining a verdict. The jury naturally incline toward the side most in need of a favorable verdict, sometimes with little regard as to the merits of

the cases. It is a curious fact that each attorney brings out exactly the desired answers from the same witness. It is said that in Leeds, England medical men refuse to testify without conference with the expert witnesses to be called on the other side of the case, and that as a rule medical witnesses are rarely cross-examined at all, and not unfrequently they are called on one side only. If such a system could be adopted by the profession in America it would be of immense service in raising the standard of expert testimony and increasing the reliance placed upon it by the courts and juries.

In answer to the question, would a surgeon be liable for damages, should he open the abdomen in an urgent case—one certain to die without it—were it impossible to get the consent of husband or friends? Mr. Clarence Brown an eminent lawyer of Toledo, Ohio, replied "The surgeon is held to the exercise of ordinary care in the performance of an operation. Ordinary care in such matters, is, of course, such care as one ordinarily educated and skilled in his profession exercises under like circumstances, having in mind always the dangerous character of the operation. The degree of care required is always enhanced by the hazardous character of the operation to be performed. A surgeon does not guarantee success or recovery. He is bound to act in good faith. He is required to be competent and skillful. He must use those means and resort to those remedies and operations which the best intelligence of the profession adopt as proper under the circumstances.

The placing of a patient under the care of a physician and surgeon implies an authority in the surgeon to do that which is reasonably necessary in the case: and if in the honest judgment of an experienced and com-

petent surgeon such an operation were necessary, and a proper regard for the chances of the patient required that it be speedily performed and before opportunity for conference with, or obtaining consent from, the relatives or friends, I think a surgeon would not be liable for damages should he perform the operation in an urgent case such as you mention, even although it might result unsuccessfully.

In my opinion, a much better way to try such questions would be to provide a medical commission, consisting say, of three reputable and experienced members of the medical profession, to be appointed by the court, to hear and determine the medical question involved in the case, and upon their report let the case proceed to final judgment, according to the usual processes of law. The distinctions and refinements made in all such inquiries would be appreciated by such a commission. They cannot be appreciated nor made clear by the methods usually adopted in jury trials.—*The American Gynecological and Obstetrical Journal*, July, 1896.

In the discussion of this paper Dr. Kelley said that to protect ourselves he believes these rules should be borne in mind and used in practice.

(1) A written record should be kept of the histories of the cases and of the visits: (2) Careful notes should be made of the results of the examination, and an effort should be made to state in the patient's own language the symptoms and nature of the complaint: (3) A note should be made of the proposed line of treatment and of what has been promised the patient from it: (4) Never promise absolutely more than the usual mechanical result of the operation: (5) Endeavor to state clearly and frankly to the patient in cases of abdominal

operations the risk of such operation as shown by approved statistics; (6) Keep careful notes of the period of convalescence; (7) Maintain subsequently a courteous but fearless attitude. Dr. Edward P. Davis said that in the courts of Pennsylvania, it had been decided that in a suit for civil damages two physicians should examine the plaintiff—one physician selected by the plaintiff and the other by the defendant. He had been recently informed by his attorney that one's accounts must be kept in such shape, that when produced in court, it would be possible for any intelligent person to identify the marks upon which the claim for professional remuneration is based.—*American Journal of Obstetrics*, July, 1896.

DOUBLE OVARIOTOMY FOLLOWED BY PREGNANCY AND DELIVERY AT FULL TERM.

Dr. R. Stansbury Sutton of Pittsburg, Pa., reports the following case: On Oct. 18, 1892, Mrs. J. P. R. of Beaver Falls, Pa., aged twenty-eight years was admitted to my private hospital on recommendation of Dr. McCarter of the same place. She was greatly emaciated and feeble. Pulse 140. Her abdomen was very large. Diagnosis: Ovarian cystomata. A very unfavorable prognosis was given to her husband. She was married in 1885 at twenty-one years of age. One year later, in 1886, her first child was born at term. Prior to the birth of this child Dr. McCarter had diagnosed an ovarian tumor lying to the right of the uterus. Six years and seven months intervened between the date of this discovery and her admittance to the hospital.

On Oct. 20, 1892, two days after her admittance I opened her abdo-

men and removed from the right side a twenty-five pound multilocular ovarian cyst, the pedicle of which I severed with a Paquelin canterly, the ligature on the stump lying close to the horn of the uterus. From the left side I removed a multilocular ovarian cyst weighing six pounds and the canterly failing to get hot, I severed the pedicle with a pair of scissors; the ligature on this pedicle also lay close to the horn of the uterus. The cavity was sponged dry and the patient elevated to the Trendelenburg posture. The wound was long, the abdominal wall exceedingly thin and the contents were fully exposed.

The uterus was somewhat larger than normal, the pedicle stump was short, and the ligatures lay close to the uterine cornua. The uterus itself had fallen back in retroversion; the fundus was brought forward to the lower angle of the abdominal wound and a patch of its peritoneal covering was abraded with the edge of a knife: it was then fixed at the lower angle of the wound with two buried silk-worm gut sutures. The abdominal wound was then closed. The operation had occupied twenty-five minutes. The tumor from the right side contained a large amount of colloid material and this was characteristic of the one on the left side. To repeat: this operation was done on the 20th of October, 1892.

On the 10th of June, 1894, she gave birth to a male child weighing ten and one-half pounds.

This child is still living and is one of my numerous namesakes. Again on the 25th of February 1896, she was delivered of a healthy boy weighing eight pounds. On the 17th of May the mother reported herself in excellent health. *The American Gynecological and Obstetrical Journal*, July, 1896.

In the same line and at the same meeting there was reported by Dr. S. C. Gordon of Portland, Maine, the following case:

Mrs. R., Age 33, had been an invalid several years before operation, unable to do any kind of labor. For a year previous had been confined to bed nearly all the time. Standing on her feet was attended by heavy weight in the pelvis and the dragging so characteristic of varicose veins of the broad ligament and pelvic organs. Curettement and perinaeorrhaphy gave some relief but failed to restore her to health. Suffered from menorrhagia and much discomfort each month. In March, 1894, I removed both ovaries and tubes and so far as I know there were no fragments of the ovary left. Each one of them was much enlarged and very flabby. The one on the right side being two inches and a half long and broad in proportion. She recovered promptly but menstruated regularly each month after two or three months. In Jan., 1895, she ceased menstruation and soon discovered she was pregnant. The period of gestation was marked by no peculiar symptoms and she was delivered of a healthy child March 12, 1896. *The American Gynecological and Obstetric Journal*. July, 1896.

ELECTRICITY IN THE TREATMENT OF FIBROIDS.

From the article of Dr. Régnier from which we quoted last month, we gather the following additional suggestions.

If unaccompanied by metrorrhagia or menorrhagia he uses in the uterine cavity a carefully insulated platinum electrode attached to the negative pole. On the abdomen, side or back

according to the situation of the fibroid he places the other electrode which he thinks should be large enough to cover the whole area immediately over the tumor. To have this electrode thus large and comfortable he makes it of sheet wadding soaked in gelose with a small zinc plate in the center. To this he attaches the positive pole. He believes we may use in such cases easily a current of 100 to 150 milliamperes increasing gradually as the patient can endure it. A séance with this intensity, may last five minutes. With less intensity, the length of time may be increased to eight or ten minutes but never to more than fifteen even when only 70 or 80 milliamperes are used.

When the fibroid is accompanied by metrorrhagia or menorrhagia he employs against this probable endometritis the galvano-cautery. For this we may use the simple electrode of platinum or carbon or use one of iron thereby securing a deposit on the cauterized surface of an oxychloride of iron which will act as a hæmostatic and antiseptic. When the uterine cavity is very large or the cervical os easily dilatable, he employs large carbon electrodes which will cauterize the whole surface at once. Of course antiseptic precautions are always to be carefully observed. In this class of cases the positive pole is active and intra-uterine while the negative inactive pole is applied as before according to the situation of the tumor.

The intensity varies. 90 to 120 milliamperes suffices for peri-uterine congestion or hæmorrhage, dependent upon stasis in vessels surrounding the fibroids. 50 or 60 milliamperes even will cause hæmostasis if sufficiently prolonged but the faradic current is better in such cases. Séance will last 5 minutes and not

be repeated before 8 or 10 days, if 150 or 200 milliamperes are used. But if less than 100 milliamperes be used, the mucous membrane will not be destroyed and usually after two or three séances at intervals of two days the flow of blood will be entirely checked.

Rest and sleep are absolutely necessary after the séance in case of the hæmorrhagic fibroid. The patients should remain in bed at least 24 hours. In the other cases rest in an easy chair or on the bed for 3 to 6 hours is sufficient.

Annales de Gynécologie et d'Obstétrique, June, 1896.

BROAD LIGAMENT PEDICLE.

Dr. Lawson Tait states that "after years of study, I believe that in the cautery we shall find the solution of this difficulty, and it only shows how careful we ought to be in all our experiments in surgery, that it was not till after at least two years' consideration of the subject that it dawned on me that we did not understand how the cautery really works. I do not think that either Baker Brown or Keith understood how they arrived at their certain and magnificent results. I am sure the bystanders did not. Everyone whom I have asked questions on the subject has answered, "Oh, yes, sear the stump: barbarous practice, going back to the days before Ambrose Paré." But Keith didn't sear the stump. It is true he burnt a piece of it off after securing it with Baker Brown's clamp, and if searing had been the means of his success he would have stopped there. But he went on for about twenty minutes or half an hour, rubbing the clamp with his cautery and cleaning it with towel or sponge, until the

onlookers got weary of this proceeding and thought Keith was finical. What he had done was really this, and I found it out only after much experimenting, that he had seized a transverse strip of the pedicle between the iron blades of his clamp, screwed the blades up tight and then heated his blades up to cooking point (that is practically, between 180° and 190° F.) and carefully maintained that temperature till the enclosed strip of pedicle was cooked dry into a strip like parchment. Now, Keith either did not understand what he was doing, but acted merely by rule of thumb, or he kept his real reason for the cautery a profound secret. Had he seared the tissue the probability either is that hæmorrhage would have occurred soon after the patient recovered from shock, or that the burnt areas would have caused pelvic suppuration—it would not have been absorbed.

Having satisfied myself of the validity of this conclusion, I set to work to contrive a better method of arriving at the same results and after many failures I have found it in the method of cautery by electricity. Knowing the resistance of a certain piece of platinum wire, I embedded it in a box of silver and isolated it by means of plaster-of-Paris or Kaolin. Two such boxes are placed face to face and connected by necessary binding screws or in the blades of a pair of clamp forceps. The boxes are placed opposite each other on a pedicle and are screwed together. An electric current of known strength and under the control of a rheostat is now turned on to heat the boxes, or better still the boxes are heated first and then applied to the pedicle, as this method saves time. The boxes are, of course, enclosed in ivory, or other bad conductor of heat, to save alike the heat and the tissues

for which the heat is not wanted, or are well packed by sponges. The apparatus I now show will so cook an ordinary pedicle that hæmorrhage will be impossible and suppuration unlikely in the extremest degree, in a space of about six to eight minutes. The same principle has been applied to instruments for the arrest of parietal and omental hæmorrhage and for the simplification of the operation of total removal of the uterus, also for operating on hæmorrhoids. I do not advocate my proposals as likely to reduce the primary mortality of operations. I believe that has been done so far as may humanly be possible. But I am quite sure that they and some others on similar line will go far to relieve our secondary results, being more satisfactory and encouraging alike to our patients, ourselves and to the art of surgery."

APPENDICITIS. J. COPLIN STINSON,
M.D., OF SAN FRANCISCO, CAL.

During the past few years so much has been written on the subject of appendicitis that further discussion would seem superfluous. In the face of all this discussion one sees this physician treating his patients by medicines and local applications, that surgeon operating if unfavorable symptoms develop during the acute attack, another operating if there is no improvement inside 36 hours, and both these surgeons, should the patient survive the acute attack, will remove the appendix in an interval; another operating only when an abscess forms or perforation has taken place, and still another operating as soon as the diagnosis is made, no matter what the stage of the disease. Reviewing these different treatments the question arises. Which is the best

method to adopt? We can only arrive at the very best conclusions on this matter by reviewing the statistics of as many cases as possible treated under these several methods, keeping in mind that the point to determine in the choice is, Which method gives the smallest percentage of mortality? Dr. Robert T. Morris, in his lectures on appendicitis, states that statistics of a large number of observers show the average death-rate in the principal attacks of appendicitis treated by medicines to be about 15 per cent., and that nearly 10 per cent. more die from the numerous chronic complications resulting from previous acute attacks. In Keen and White's "Surgery," the mortality is placed at about one in seven cases, and it is stated that in recurring cases the danger to life increases with each successive attack. Dr. J. A. Wyeth states that "the *Materia Medica* possesses no agent that can prevent infection of the peritoneum from a diseased appendix, or can cure the disease when once established."

Patients who are not operated upon unless unfavorable symptoms develop, or if there is no improvement inside 36 hours, are subject to considerable risk and danger, as we cannot say positively which case will recover from an attack or which will go on to suppuration, gangrene, or perforation. We can guess as to the condition of the appendix, and that is the best we can do. The symptoms of appendicitis do not indicate the condition of the appendix: a patient may have a gangrenous appendix, with pulse and temperature normal, because the toxins are not entering the circulation. I have seen several patients with normal pulse and temperature complaining only of some pain in the right side, and on operating the appendices were found to be partially gangrenous or to contain one

or more sloughs on the verge of perforation. Patients who are not operated upon before an abscess forms or perforation takes place are subject to the danger of local or general peritonitis, septicemia, and pyemia. Now, has any physician or surgeon the judgment to determine whether perforation or gangrene will occur, or whether the abscess, if one forms, will be localized or spread itself? Dr. Wyeth maintains that "appendicitis is strictly a surgical disease: danger to life is from peritonitis, which may occur from perforation, but also without it, for septic organisms can pass through an unruptured appendix if its walls are ulcerating or gangrenous, and it is not within the scope of human judgment to determine from the symptoms whether or not perforation or gangrene is about to occur, whether peritonitis, with or without perforation, is being circumscribed by adhesions or is spreading to general infection."

If a patient has recovered from an acute attack and is operated upon in an interval, the infection is limited to the appendix buried more or less in adhesions; there is always some danger (in separating adhesions) of injury to adjacent structures; besides, if adhesions have been freely separated, drainage is necessitated, which may be followed by hernia. According to Dr. Bull's statistics the death-rate of operated interval cases is about 2 per cent. What is the mortality in cases operated upon as soon as the diagnosis is made? Statistics show that the operation has been performed so often by surgeons, with a mortality of 1 to 2 per cent., and in many instances without a death, that there is no ground for attacking the operation upon the score of fatality. Hernia is an infrequent sequence of abdominal section today. A record of one hundred consecutive operations for ap-

pendicitis, with a mortality of 2 per cent., and a post-operative hernia rate of zero, speaks for itself.

The question now arises, How shall we treat our cases of appendicitis? I should say, operate at the earliest possible moment as soon as the diagnosis is made, no matter what the stage of the disease.

The results of Morris, Murphy, Deaver, and Rushmore, who teach that we should operate as soon as diagnosis is made, are most satisfactory. We may use palliative, plastic, and conservative methods in operating on tubes and ovaries, but we must be prompt, radical, and scientific in our operations for appendicitis.

In looking over my list of cases in which I performed or assisted in an operation for appendicitis while house surgeon at the New York Post-graduate Medical School and Hospital, and since I left that institution, I find they number 54. Of these, 36 were interval cases.

In three cases a median incision was made; in the remaining the incisions were made over the normal site of the appendix and in a line which followed the trend of the fibers of the external oblique aponeurosis which was divided in the direction of its fibers, while the subjacent structures were divided in the same line with the aponeurosis. In all cases where an inch-and-a-half incision was used a guy line of catgut was inserted at the proximal angle of the wound through the divided edges of the internal oblique and transversalis muscles, fascia, and peritoneum; when it came to closing the wounds, by making traction on the guy line the retracted margins of the divided structures were quickly brought into view, and thus were easily sutured. I am sure that if each divided layer of aponeurosis,

muscles, and fascia was suture accurately and separately with sterilized chromicized tendon or chromicized catgut, there would never be a post-operative hernia. In the majority of the cases the appendix was amputated, and stump buried by Morris's method.

In several cases fecal fistule formed, and in all there were large cavities left to granulate from the bottom, delaying cicatrization for some time. I think, in these cases, had the operators used one or more wicks surrounded by gutta-percha tissue, to prevent adhesions to peritoneum, instead of gauze packings, that the mortality would have been lessened, and of those who recovered the convalescence would have been more rapid, less painful, with fewer disagreeable symptoms, no hernia nor fecal fistulæ resulting, which sometimes follow the use of large gauze packing, glass or other stiff drainage-tubes.

Out of 54 operations there were 2 deaths, both abscess cases: 1 died of septicæmia. In this case a long incision was used; the other died from nephritis, which was present before the operation, and which I am strongly inclined to think was primarily produced by septic material carried from the appendicular abscess. I am sure that in both these cases

had the appendix been removed in the incipency of the inflammation I could in this paper have reported 54 consecutive operations without a death.

Conclusions.—From a study of the cases above cited and comparison of the methods used by various physicians and surgeons, I can only draw the following conclusions:

1. That appendicitis is strictly a surgical disease.

2. That an infected appendix should be removed as soon as the diagnosis is made.

3. That in many cases of appendicitis an inch-and-a-half incision is sufficient for operative treatment.

4. That if there is local or general infection the abscess cavities should be freely flushed out with hot saline solution.

5. That if drainage is necessitated, one or two capillary wicks should be used instead of iodoform or other gauze packing, glass or other stiff tubes.

6. That to prevent hernia the incision should be small. If drainage is necessitated, a small wick should be used, and the wound be closed, layer by layer, separately and accurately, with sterilized chromicised tendon or chromicised catgut suture.

— *American Medico-Surgical Bulletin*, June 6, 1896

ANNALS

—OF—

GYNÆCOLOGY AND PÆDIATRY.

DEPARTMENT OF PÆDIATRY.

Conducted by ROBERT W. HASTINGS, A.M., M.D.

ORIGINAL COMMUNICATIONS.

Two Cases of Cerebro-Spinal Meningitis.

GEORGE B. HENSHAW, M.D.,

Physician to Out-patients Cambridge Hospital.

CASE I.—Gertrude I., aged two and one-half years, had been well and strong since birth. She was a precocious child with excellent physical development and had been indulged in all her fancies up to the limit of the father's income. He was a fairly prosperous Swedish shoemaker.

On the evening of last July 10, she sat up unusually late and was allowed to play out in the yard, as the night was quite warm. She went to bed about 8.30 o'clock apparently perfectly well. At midnight she awoke her parents by crying, was very restless and seemed feverish and she remained awake and cried frequently during the rest of the night. About 6 A. M., she began to have a severe attack of vomiting and this persisted during the day. Her cry-

ing slowly changed its character and became a few hours later a moan and then a sigh as if she was in great pain and was losing strength steadily. About 9 A. M., she had a violent convulsion, with clonic spasm of muscles of back and extremities and a tendency to opisthotonos. Breathing became very rapid, somewhat irregular, sighing on expiration only; pulse 120, weak; temperature 102°, by rectum. Careful examination of heart and lungs proved negative; skin was dry, pale; cheeks slightly flushed; abdomen retracted. Marked tenderness of back of neck with muscular rigidity and upper half of spinal column was also very tender. Slightest pressure tended to increase spasms. Complete loss of consciousness. Pupils slightly contracted and somewhat

irregular. Applications of ice to head and neck relieved the spasms somewhat. Pulse indicated hot water bottles to feet and warm blankets about the body.

Medication by mouth refused and when pushed, not retained. Brandy by hypodermic injection improved the pulse somewhat. Four hours later a cleansing enema given and an enema of two ounces hot milk, half an ounce of Brandy and ten drops of Laudanum, was retained.

There was noted an herpetic eruption about the nose and cheeks and a purpuric spot the size of a silver half dollar on right shoulder and another larger and more livid just below left costal margin, axillary line. She had two distinct convulsions with general cyanosis during that afternoon, and was lying diagonally across the bed in a deep stupor. Extremities cold, pulse rapid and feeble, respiration over 50 per minute.

During the night had incontinence of urine and fæces, stools dark and thin. She failed to respond to stimulation satisfactorily. Morphia gr. 1-20 subcutaneously and repeated twice failed to lessen spasms. She continued to sink steadily, temperature became subnormal and she died early the next morning. Duration of illness, less than two days. No autopsy.

This was the first case of this kind in the neighborhood this season. Three others however, followed shortly after; of these one died and two recovered.

CASE II.—[In same neighborhood

as Case I, this was the third one of this disease, as far as known.] Maud M., aged eighteen months, had never been very strong, was a bottle-fed baby owing to mother's persistent sore nipples. Food had been condensed milk. Parents poor.

Six months before had had several convulsions during teething. Had had diarrhœa for about a week, finally relieved with paregoric. She was fretful and "nervous," and anæmic, poorly nourished. July 21, vomiting began early in morning and a well-marked convulsion supervened about 7 A. M., and lasted half an hour. Parents were frightened by dusky appearance of child's-skin. Respiration was 46; temperature 100°, by rectum; pulse 120, regular and fairly strong. Examination of heart and lungs negative. Abdomen slightly distended and tympanitic. No eruption. Head only slightly retracted, tenderness of neck not marked. Pupils normal.

Child was drowsy and disliked to be disturbed; any motion causing pain apparently. Sodium Bromide grs. x by the mouth was not retained. Nasal tube was tried with no better success. Excessive thirst was relieved by cracked ice frequently. Morphia gr. 1-24 subcutaneously and repeated once served to shorten the convulsions somewhat.

During the day the tendency to opisthotonos increased, together with the restlessness. The convulsive seizures occurred about every two hours. During the evening as the child was very wakeful and the morphia did not give the rest, chloral

hydrate grs. v in hot milk was given by rectum and retained. This very soon quieted the child and she did not move during the remainder of the night.

July 22. (Second day). Pulse 120 somewhat irregular, but of fair strength, respiration 42. Pallor persistent. Nutrient enemata, of half a beaten egg with same quantity of hot water, given every two hours, were retained. Occasional sighing and restlessness continued during the day. Vomited twice.

July 23. (Third day). Bowels costive, abdomen now retracted. Temperature 101° ; pulse 128. No convulsions but slight spasmodic twitchings of muscles of extremities at frequent intervals. Head persistently retracted. Very restless toward night. Chloral hydrate given at 8 P. M., quieted the child considerably. No depression noted.

July 24. Milk 2 ounce and lime water added to enemata, also brandy 1 drachm. No change.

July 26. Appearance of child is much brighter. No movement without apparent distress. Attempt to feed by mouth induced vomiting. Urine passed freely, not examined. Chloral repeated at night.

July 28. Nourishment retained by stomach by using nasal tube. Slight improvement in nervous symptoms. Temperature in A. M., 102° , P. M. 103° . General muscular rigidity but opisthotonos has disappeared. Progressive emaciation.

July 30. Decubitus natural; movements without much pain. Pulse

regular of good strength, nasal tube omitted. Chloral omitted. Sodium Bromide grs. x substituted. Potass. Iodi grs. 2, t. i. d.

Convalescence has continued slowly but uninterrupted up to the present time.

Although the use of chloral hydrate in this class of cases has been condemned by some practitioners, the result of its use in Case II, surely justified its trial. Its depressing effects were not here perceptible, and it quieted the patient more promptly than did the morphia.

It has been found that nasal feeding is oftentimes well borne when food would not be retained by the mouth. When endurable it is certainly more gratifying than rectal alimentation.

It has been stated that this disease is more common in males than in females. In this series of cases, three out of four were females.

The use of quinine has been suggested by several writers. It was not tried in these cases from fear that too much medication might not tend to a favorable result. It may be objected that opium was not given a fair trial in Case II., as many of the older physicians used to give very large doses and report very favorably. If given early in the disease it might be of benefit in shortening the attack but if tried in small doses at frequent intervals and without apparent effect it would seem to be good caution to try some other sedative for the individual case if possible.

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EDITORIAL.

These are days of the bicycle. The father of the family rides to business or for pleasure. The mother rides for relief from the weary monotony of the home life and refreshment of the physical and mental nature. Young men and maidens ride either for recreation or for records. And lastly the children ride. It is becoming one of their commonest past-times. And it is because it is so common that we believe it may be wise to remind the physicians that there may be a danger in it. Adults are able to care for themselves, or think that they are, when in average good health. If they choose to make fools of themselves by riding a hundred miles a day or by trying to reach or pass the record of a fast riding acquaintance, they deem it an impertinence to receive any friendly medical advice in the matter. But the children can not be said to be so independent. What then is the result of the riding upon children and what are its dangers?

So far as we know, no statistics have yet been gathered. Hence these suggestions can not be fully scientific but must rather be of a suggestive nature.

Children begin to ride at a very early age. Ere they are a year old, they

may be seen flying along the streets, not indeed on wheels of their own but in front of a prond and enthusiastic father or mother. Such treatment has not failed to awaken the prompt rebuke of the family physician.

To meet his requirements various baskets and sling saddles have been devised by the bicycle manufacturers. None that has been brought to our attention as yet, will avoid the dangers incident to hurrying along our roads of varying smoothness. The constant jar which is only rendered harmless to the fully developed adult by careful adjustment of springs and saddles is not to be thought of with any favor for the infant. Its vertebræ are far too soft and imperfectly ossified to render any such treatment reasonable.

But when the child is three or four years old he begins to ask for a wheel of his own. A trieyele worked by foot or hand power used to satisfy but not now.

Hence we see here, there and everywhere these little fellows speeding along like little centaurs. They learn to ride very quickly and become experts in a much shorter time than their elders. They rarely fall and hurt themselves.

With their know nothing, fear

nothing natures, they venture into places where angels might fear to follow.

And usually they come out safe and sound. It keeps them out of doors, it furnishes healthful amusement, it develops useful muscular strength. Where then is the danger? It seems to us that it lies in the too great devotion to one kind of exercise. It used to be such hard work to get anywhere on a tricycle or velocipede that the child soon tired of the effort and turned his attention to something else. But now with his little wheel, furnished in all its detail like the larger ones, the child can get from one spot to another in an incredibly short time. Hence the great temptation to continue this exhilarating form of amusement. From morning to night we see him riding. True he is not on his wheel all the time. He gets off and plays a little while with this mate.

Suddenly he recalls another a half mile away and in a moment is off to join that one in his sports. Nor is this all. The father returns from business and is off for a ride of a few miles for recreation. It is by no means unusual to see the little son or daughter—the masculine pronoun is employed all along in order to avoid pedantry and not because the bicycle is any more common among boys than

girls—riding along easily beside him. Now what is the effect of all this exercise upon the child. Statistics as to this as well as the effect of the bicycle upon the other members of humanity will doubtless ere long be given to us. There seems no doubt that they will show an abnormal development of the calf and thigh muscles. What the effect will be on the spine and its multitude of joints and ligaments, upon the pelvis while as yet it is in the formative stage, upon the heart and lungs and the pelvic organs we can only estimate. But we do know that excessive exercise in any one particular direction is harmful to the general strength of the whole system. The duty of the physician in warning against such excess seems therefore apparent.

The bicycle is not to be forbidden to healthy children but is to be used with moderation.

Parents should see to it that the little ones do not ride persistently for hours at a time, and that they do not ride in the heat of the burning sun of summer. Care for the development of the trunk muscles and the muscles of the back and upper extremities is always necessary and will do much to mitigate the dangers indicated. Such training is found in most of our outdoor sports and in any well managed and equipped gymnasium.

REVIEW OF PÆDIATRY.

TREATMENT OF INFANTILE ECZEMA.

Dr. Ellice M. Alger having had a large experience in treating this trouble contributes the following suggestions:

In treating a case of infantile eczema, the search for the cause should go hand in hand with the treatment, which is otherwise only palliatory. Always find how the child is fed; if nursed, how often, and whether it vomits or has gaseous eructations. Look for any change in the mother's habits just previous to the outbreak, which might have had an influence on her milk. Possibly she has begun to menstruate, or some nervous or sexual trouble has affected it. If necessary get a specimen of the milk and find out what is wanting or what is in excess. If the child is fed on cow's milk, be sure that it is properly diluted in proportion to the child's age; that it is properly sterilized and made neutral or alkaline before using. See that all utensils are kept clean, especially the rubber nipples and connections. If condensed milk is used, stop it entirely or get a brand without sugar. If prepared foods are used, get the formula and make a careful study of that particular child's needs. Above all don't allow any child to have tea or coffee, and do not permit any child under a year to be fed from the family table.

Now for the internal remedies. In an acute eczema of a few days' standing you can sometimes obtain a decided amelioration of symptoms by a brisk cathartic, calomel preferred.

It stimulates glandular action, eliminates excrementitious products, and by starting a derivative action here the congestion of the skin may be greatly lessened. The ordinary rhubarb and soda sometimes serves us very well here, unloading the intestines, stimulating secretions, and neutralizing acidity. Generally with a little aid the stomach will correct itself in a short time if only proper food be introduced. Perhaps a little pepsin for a few days may be of use or a diet of peptonized milk. Some cases are benefited by judicious use of cod-liver oil and iron. Arsenic is generally contra-indicated.

Weaning a child because of an intractable eczema should be kept as a last resort, owing to the undoubted risk to the child. But a long-continued eczema, by lowering the vitality of the skin, may be the cause of much annoyance in later years.

The local treatment, when only palliatory, is very important for the comfort of the patient and family. The conditions we have to meet are: Inflammatory action, parasitic infection, and pronounced itching. The crusts can be very easily removed by salicylated oil, rendering the skin itself accessible. Washing with water should be strictly interdicted, oil being used as a substitute. We can now treat the local conditions very happily by Lassar's paste:

Zinc. Oxid.,	
Pulv. Amyli.,	aa 2 dr.
Petrolat.,	1-2 oz.

This is a paste through which the copious exudation can percolate freely:

it is somewhat antipruritic, and a good base for other ingredients. In acute cases we add to it boric acid, 10-20 grm. to the ounce: in less acute cases salicylic acid, 10 grm. to the ounce, is protective and decidedly antiseptic and antipruritic. We can add ichthyol, 5-10 per cent., in the older cases, where the skin is thickened and scaling is excessive. Ichthyol, being a stimulant to the skin, can also be used in a 10 per cent., aqueous solution, being especially valuable in papular eczema.

In all cases the application should be changed two or three times daily, every precaution being taken to see that the skin is kept covered and scratching prevented. On the face and scalp the ointments can be spread on cheese-cloth and kept in place by a bandage, or, better still, by a mask cut to fit the child and pinned or tied behind the head.—*American Medico-Surgical Bulletin*, Aug. 1, 1896.

RECTAL EXAMINATION IN CHILDREN.

Dr. George Carpenter having made a careful study of the subject presented the results of his study and experience in a paper read before the East Sussex Medico-Chirurgical Society.

He claims that by digital rectal examinations assisted by bi-manual palpation he has been greatly aided in the diagnosis of doubtful cases of tubercular peritonitis. Naturally they are of most value in children four or five years old because a considerable area outside of the pelvis may be explored even if no anæsthetic be employed. The patient's legs should be well drawn up, thighs flexed on the abdomen, pelvis raised on a cushion. Then keeping the left

hand on the abdomen, with the right index finger the right side of the abdominal cavity may be explored.

By reversing hands he gets at the left side. He thus ascertains the condition of the abdominal wall, nearly up to and sometimes even above the umbilicus, as well as the condition of the intestines, glands and any pelvic abnormalities.

Moreover, even if the disease has not progressed so far as to produce intestinal matting or definite abdominal lumps, a thin plaque of granular omental thickening may be detected. A partially full bladder will be readily distinguished from a collection of pus or other fluid. He has noted the fact that intestines affected by peritonitis tend to move en masse when pressed upon and do not yield quickly to the finger as they do in health. The mistake may be made of confounding small empty and contracted coils with intestinal thickening but when the possibility is borne in mind the chance of the mistake is very slight. Dr. Carpenter supports his statements by numerous illustrative cases. Thus: "A boy, aged nearly two years, was brought to the Evelina Hospital for swelling of the stomach, wasting and constipation. The abdominal swelling had been noticed three weeks and varied from time to time, but he had been ailing sometime previously to this. The intestinal rumblings were very distressing: he could not sleep and passed scarcely any urine. The bowels were confined for three or four days and then acted loosely. He was found to be a fairly-nourished, irritable and rachitic child with an enlarged abdomen which measured 23 1-2 inches at the umbilicus and 24 1-2 inches at the widest part. It was distended, and tympanitic and the abdominal veins were large. Per rectum there was a doubtful lumpiness in the right iliac

region and over the last lumbar vertebra two enlarged mesenteric glands were detected. A few days later there was no doubt about the lump in the right iliac region, the abdominal distention having decreased. In the hypogastric region a cord-like mass, of about the diameter of a cedar pencil, was detected over the site of the urachus. Per rectum a very distinct mass, slightly irregular in outline, was found situated just above the last lumbar vertebra; and between the examining finger and the abdominal wall several inches of hard tumor were felt. A week later lumpiness was detected to the left of the umbilicus. Latterly he had suffered from frequent abdominal pains and the motions had been loose and dark green in color. The child died soon after and a necropsy was made which verified the diagnosis of tubercular peritonitis. The tumors were due to matted intestine."

In spite of his large experience Dr. Carpenter finds it not always easy to distinguish between tubercular peritonitis and intussusception. Each may have a sausage like tumor passing across the abdomen, peristaltic motion may be absent, there may be no blood stained mucons or blood, there may be no symptoms of obstruction, but a relaxed abdomen and a facial expression by no means indicative of so serious a lesion as this.

The examination of the pelvic organs of girls per rectum is not at all unusual but the sketches of the paper and the statements of the sizes to be expected are of no little value. The important guide he considers the utero-sacral ligaments. The tubes and ovaries are on a higher plane and may be easily manipulated bimanually. In young children the uterus can be rolled between the finger and the symphysis pubis and its contour

made out with ease. By this rectal examination he has successfully diagnosed cases of inflammation of tubes, ovaries, and uterus of various kinds, as well as of the bladder, ureters, and kidneys.—*British Gynaecological Journal*, May, 1896.

PREVENTION OF ACCIDENTS DUE TO SERUM THERAPY.

The more or less wide spread fear of parents to have antitoxin treatment of their children and the accompanying hesitation on the part of some physicians, has led Dr. Rochou to make a special study of this subject.

Some parents influenced by the stories they have heard absolutely refuse to allow it to be tried. Others wish all other means tried first and hence lose much valuable time. Moreover no physician with much experience in its use has escaped some unfortunate results either of eruptions, articular pains or renal troubles.

Hence the great importance of finding the source of such "accidents." A part of these he attributes to the use of the large doses of 20 c. c. or 30 c. c. sometimes employed in hospitals. Another element of cause is found in the frequent presence of the streptococcus. But there are cases known, such as those of Dr. Variot and Prof. Sangerhaus, when the streptococcus was not present.

Hence he believes that we must seek in transformation in the serum the cause of these unfortunate results. But there is no mark which will disclose these alterations.

The statement which accompanies the bottles sent out from l'Institut

Pasteur directs only inefficiently on this subject.

A slight deposit ought not to be considered as a mark of bad quality of the liquid, which moreover ought to be clear. But often in practice the bottle has been shaken a few moments before its use and so we may not know the cause of trouble which may however exist.

Moreover the worst accidents which have been reported were produced by serums whose appearance left nothing to be desired.

The clearness of the serum given as a guarantee of its good preservation appears to be altogether insufficient.

We may add indeed the age of the preparation but though that may be a useful check, its value is far from absolute.

Once started from l'Institut where it has been prepared, each bottle is in the midst of conditions which are so different and liable to such an infinite variation, that it is impossible to lay down laws for the preservation of the serum. However well known they may be, apart perhaps from the hospitals, they will not be applied.

In the month of May, 1895, he gave an injection of 10 c. c. to a child two and a half years old, suffering from simple diphtheritic sore throat.

There was no albumen in the urine. The next day the child showed anasarca. The urine was very scanty and contained an abundance of albumen. This condition persisted three weeks. Favorable action of the serum was none the less produced: false membrane was loosened and did not reappear. The serum employed was normal in appearance.

Since that time he has never made use of serum obtained by chance. He has always on hand one or two bottles of 10 c. c. evaporated in a

vacuum and this dried serum preserved in sterilized tubes he has since employed, first dissolving it in 9 c. c. of sterilized distilled water. For the evaporation of 10 c. c. of serum leaves a residue of just 1 gramme.

He has never had any complication since. The point of puncture sometimes shows a slight reddish periphery. Resolution comes on rapidly.

He has not seen any albuminaria traceable to the injection of the serum and in the 37 cases which he has thus treated he has not had any cutaneous eruptions, though he had many before. This last he admits was rather unfortunate and might not occur to others.

Evaporation did not affect the power of the serum, for in every case the result was quickly noted. In only four cases did he need to inject 20 c. c. In all his patients 10 c. c. effected a cure and in one case the preparation was four months old. Hence it would seem that there is a marked advantage in carrying the serum in a dry form. The unknown changes of the liquid serum will thus be less frequent if not entirely stopped. That arrangement would be better for country practice and places with poor mail facilities.

Thus sure of what he uses the physician will hesitate less and at the same time this guarantee of safety will restore the public confidence.
—*Journal de Clinique et de Therapeutique Infantiles*, July 9, 1896

SUMMER CAMP HYGIENE.

In these days when camping out in summer is becoming so common for adults and children alike, the article of Dr. A. L. Benedict on this subject is of marked value.

His ideas are based on observations made during three summers at the Natural Science Camp on Canandaigua Lake. Here are gathered each summer 75 boys of various ages and tastes. By a semi-military discipline various simple rules are enforced for the preservation of health and order. Careful check against accident is made by having seven general assemblies daily.

Bruises, base-ball fingers, and slight sprains on fingers, but nothing serious has occurred in some years. As prophylaxis against contagious diseases, parents and boys are carefully questioned, and the boys put through a thorough physical examination. This also enables the camp authorities to guard against sports and exercises which might be injurious and to suggest particular hygienic measures for the relief of minor physical deformities.

The food supply is rigorously inspected. Ice is cut from the lake and stored for the summer use. Water is obtained from a spring far from any habitation.

A near by sulphur spring proves of value in softening the skin and removing acne pustules.

A good variety of plain food is provided. Milk from two farmers whose premises are often inspected. Fresh fruit in abundance and good candy under suitable regulations.

Excrement and swill are not allowed on the grounds. Ordinary privies are used, the site being changed from year to year.

Swimming is allowed four hours after breakfast and dinner, and the boys are permitted though not advised to stay in as long as three-quarters of an hour. All are closely watched.

The writer calls attention to the varying way in which bathing effects different people.

"No one should stay in the water

after the slightest sensation of cold or fatigue nor after the lips become livid, whatever the subjective state."

Of course all the boys sleep in tents. With a raised wooden floor, flies and flaps they furnish good shelter even in cold stormy weather. Thus they enjoy the benefits of an out door life, day and night.

Very rarely do they suffer from any illness and they are all specially free from "colds." This the writer attributes to the lack of the irritant causes of such disorders found in the smoke, dust and bacteria of a city.

Physical measurements are made at the beginning and close of camp and usually show not an unhealthy exaggeration of any particular set of muscles or organs but a moderate healthy increase in strength, size and endurance.

The boys thus return to their city homes with a self-reliance, an erectness of carriage and a general nervous and muscular tone which will serve to carry them through the labors of winter in the city.—*American Medical-Surgical Bulletin*, July 23, 1896.

DIPHTHERIA OF THE EYE TREATED BY ANTITOXIN.

A Russian physician, Evetzki by name, reports a case of a little girl, a year old, who had an inflammation of the left eye. The child was thin and pale. The left upper lid was puffed up, reddened, soft, drooping, hiding the edge of the lower lid. This last was also slightly swollen. A trouble some discharge was flowing away. On turning over the lid, there was visible a membrane with greenish grey spots, of which it was possible to loosen pieces. The conjunctiva of the eye was slightly red. There were

also membranes in the nose and mouth. Bacteriological examination revealed bacilli which differed in no respect from the bacilli of Loeffler.

Injection of Antitoxin effected a complete cure at the end of two months. He also treated a girl three and a half years old who had a double conjunctivitis. In this last it was possible to discover the source of the disease. The daughter of the concierge of the house had just died of laryngeal diphtheria. Cure followed an injection of antitoxin.—*Journal de Clinique et de Therapeutique Infantiles*, July 9, 1896.

PROPHYLAXIS OF NASAL CATARRH.

In a paper read before the American Laryngological Association recently, Dr. Carl Seiler says: We must logically look for the earliest causes of nasal catarrh in childhood, in children of civilized nations, in the cities, in the habitation and methods of raising children by so-called civilized plans of over-clothing, over-feeding, and over-care-taking.

It is not only the over-clothing, over-feeding and over-care which do the harm: it is the method and unsystematic bringing up of children which cause one attack of simple coryza to run into another and thus become a subacute catarrh; and also the superstition and indolence of mothers as well as of the general practitioner, who smother the poor infant that has a cold in its head with flannels and blankets even in the midst of summer, and deny Nature's best remedy—fresh air—dosing it with drugs and antiseptics and neglect cleanliness and pure asepis. No wonder that the sufferer barely recovers from one cold in the head

before he is attacked by another; and no wonder that the pathological changes result by accumulation through such repeated inflammatory processes in hypertrophic changes of the turbinated tissue, or, if any inherited systemic dyscrasia be present, speedily changes it into the atrophic form. It is therefore the duty of the medical adviser to instruct the parents in the preventive measures which should be instituted to prevent this prevalent disease, and it is the general practitioner more than the specialist who is at fault in this matter of carelessly encouraging parents in their neglect by telling them that the child will outgrow the disease; and it is also, therefore, the duty of the specialist who, above all, is most intimately acquainted with the baneful effects in after life of such neglect, to instruct the general profession.

As already indicated in the foregoing remarks cleanliness, not only of the whole body, but of the nasal cavities in particular, whether a cold in the head is present or not, is the primal and most important prophylactic measure that can be and should be instituted to prevent recurrence of acute coryza, prevent accumulation, inspersion and putrefaction of mucus, and then finally prevent systemic infection by the ingestion of the products of putrefaction in the most susceptible system of a child.

In dentistry for a long time this same principal of cleanliness has been insisted upon by the dental surgeons, and they have successfully instructed the parents in taking care, with brush and powder, tooth washes and antiseptic lotions, of not only their own but their children's teeth, to prevent decay, so that the general practitioner—except in remote country towns—is but rarely called upon to

extract decayed molars, and the ravages of neglected dental caries, which but a quarter of a century ago were so common, are but rarely seen nowadays even among the least educated classes of our citizens.

Why, therefore, should not the rhinologist follow in the footsteps of the dental surgeon, and bring about in like manner so marked a diminution of this still commonly supposed incurable disease—nasal catarrh—by prophylaxis? It is no more difficult to teach a child to cleanse the nostrils and anterior cavities with an appropriate wash than it is to teach him, as is done in every family, to use the toothbrush: and we all know that the only difficulty encountered is the prejudice of the parents and the natural abhorrence of the child to such a procedure, which, however, are no greater obstacles than the dental surgeon had to encounter in his instituting a reform.

As in all such matters of reform, it is necessary, however, to first instruct the teacher and make him understand the necessity and the all-importance of adhering to the strict observance of minute details in the carrying out of the method to be employed: and I will therefore hastily sum up my opinions as to the best methods to pursue in preventing the growth and development of nasal catarrh in both its forms—hyper-trophic and atrophic—in children: that is to say, the simple, uncomplicated, non-traumatic form of the disease, because the others, of course, need more than hygienic and prophylactic measures.

Let therefore a child, as early as possible in life, be taught to snuff up the nose a warm saline or alkaline solution, with or without the addition of antiseptics, either from the hollow of the hand or from a small cup or glass, three or four times,

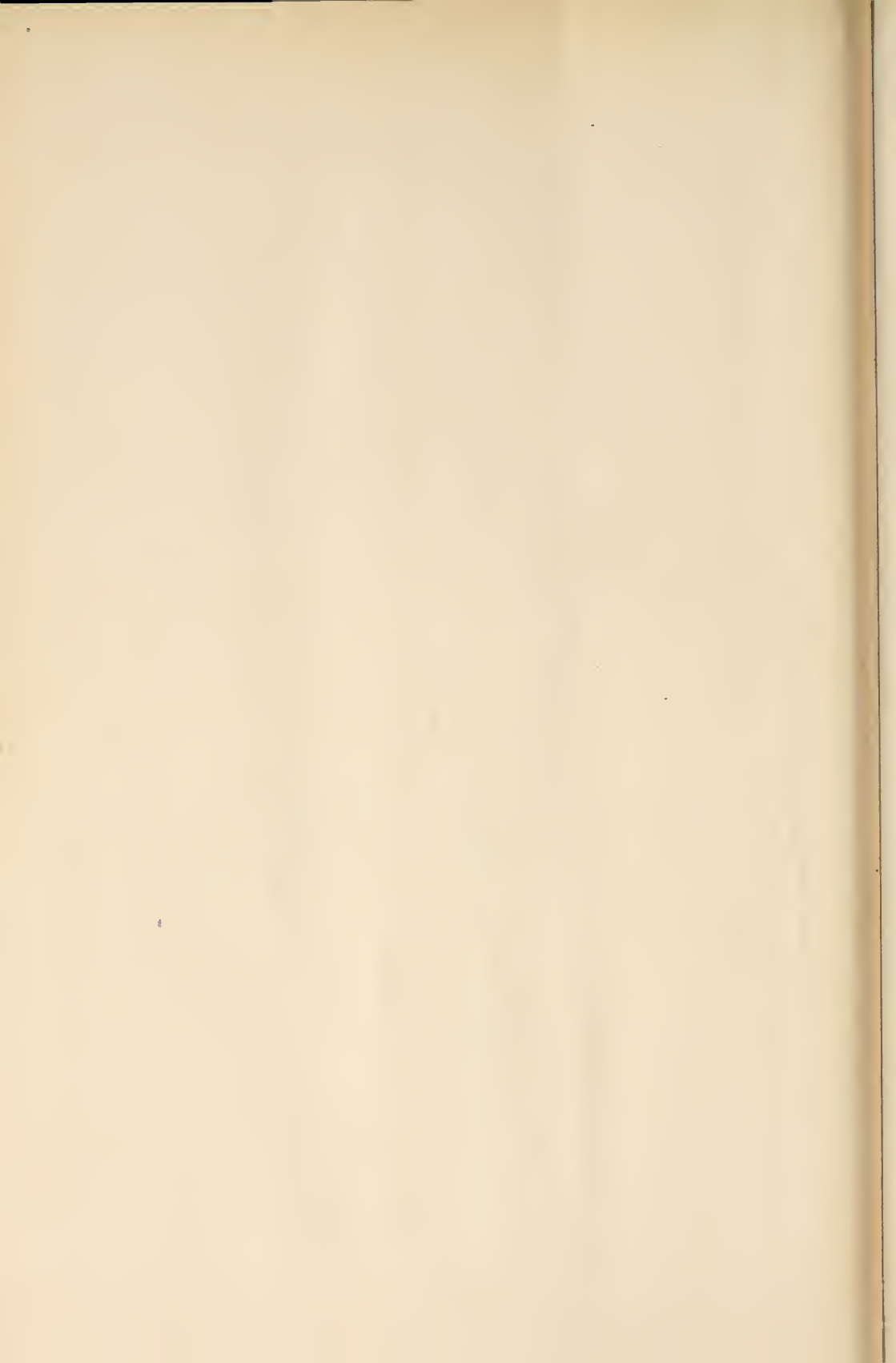
morning and evening, and let no amount of prejudice or recommendation by advertisements or other pressure brought to bear upon the parents allow a douche or atomizer or other artificial appliance to be substituted for this natural method of nasal cleansing: because, in the first place, the natural method being more readily applicable to the child's nature, avoids the natural abhorrence of instruments of any kind in the child's mind: and, second, because they are in most instances either ineffectual in accomplishing the purpose of thoroughly cleansing the nasal cavities, or else are, if they do accomplish the purpose, harmful, as in the case of the douche, by the inordinate pressure of the solution upon the organ.

Also let the solution be of not only a chemically non-irritating quality, but also of such temperature and specific gravity that overheating or chilling of the nasal mucons membrane and osmotic action producing pain and smarting are avoided.

Of course, antiseptics may be added to the solution at the discretion of the physician to prevent putrefaction and self-inoculation with septic material.

As important, however, as this nasal cleansing, is the proper feeding and clothing of children, so that over-heating of the general system may be avoided, and the skin, especially around the neck and arms, be so hardened by cold-water applications, in the form of sponging morning and night, that moderate exposure will not readily give rise to acute coryza.

Our American children in particular are, in my opinion, as a rule too much clothed, too much confined indoors, and overfed with heat-producing food, so that when they have left the nursery they are mere hot-house plants, and it takes a long





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